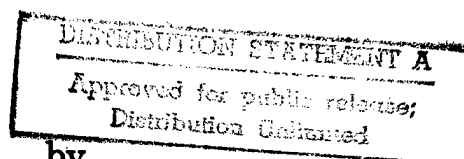


CRS Report for Congress

Non-Proliferation Regimes: A Comparative Analysis of Policies to Control the Spread of Nuclear, Chemical and Biological Weapons and Missiles



by

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NON-PROLIFERATION REGIMES: A COMPARATIVE ANALYSIS OF POLICIES TO CONTROL THE SPREAD OF NUCLEAR, CHEMICAL AND BIOLOGICAL WEAPONS AND MISSILES

SUMMARY

The Bush Administration released a statement on March 7, 1991 declaring, "The proliferation of weapons of mass destruction may profoundly challenge our national security in the 1990s." In preparing to meet that challenge, United States non-proliferation policies have been the catalyst for global efforts to control the spread of nuclear, chemical and biological weapons, and missiles. Continued U.S. leadership may serve as a model for other nations to follow and could encourage expansion of the international consensus against the various forms of proliferation.

The regimes are comprised of multilateral, bilateral, and unilateral policies. Common strategies which contribute to all three of the regimes are: consensus building, multilateral and bilateral treaties, multilateral and unilateral export controls, positive and negative incentives such as assistance and sanctions, arms control, confidence building measures, direct action, defenses, and other measures designed to address the underlying causes of instability and insecurity. No single approach or strategy seems adequate to address the multi-faceted problems of non-proliferation policy. While some strategies seem best suited for particular circumstances, each of the non-proliferation regimes will probably benefit from a sustained and coordinated application of the full range of existing strategies and approaches.

The nuclear regime has employed of the strategies cited. By comparison, the chemical and biological regime and the missile regime have not yet achieved sufficient international consensus to facilitate a more complete development of particular strategies. For example, treaties comprise a major structural component of the nuclear regime, but are less central to the other regimes. By contrast, the chemical and biological weapons and the missile regimes are heavily dependent on voluntary supplier export controls as their main strategy for stemming proliferation. No strategy, or combination of strategies, is leakproof. However, experience suggests that a coordinated combination of strategies can successfully slow proliferation.

Non-proliferation has not always been the top priority for U.S. foreign and national security policy, nor will it be in the future. Other strategic and economic interests have at times prevailed over non-proliferation considerations. The priority that the United States assigns for its proliferation policies may send a signal to other nations. If the United States pursues strategic and/or commercial interests despite the negative consequences that such actions may have for proliferation, other countries are likely to do the same. If, however, the United States appears willing to make certain foreign policy and security objectives subordinate to non-proliferation goals, other nations may be more likely to join an international consensus against proliferation. Slowing the spread of weapons of mass destruction will not be achieved without sacrifice. New initiatives will probably require new resources. High-priority proliferation issues can benefit from receiving the appropriate level of attention from top level officials. The development and concentration of expertise on the specific problems of each of the three regimes can help to prepare U.S. responses to future developments. Effective regime maintenance may depend on close coordination between the agencies, offices, and staffs trained to manage the various aspects of non-proliferation policy.

TABLE OF CONTENTS

Executive Summary	1
I. THE NUCLEAR NON-PROLIFERATION REGIME	6
Summary	
A. The International Components of the Nuclear Non-Proliferation Regime: Treaties and Other Understandings	7
1. Treaty on the Non-Proliferation of Nuclear Weapons	7
2. The Statute of the International Atomic Energy Agency	8
3. Treaty for the Prohibition of Nuclear Weapons in Latin America	9
4. South Pacific Nuclear Weapons Free Zone	9
5. Nuclear Suppliers Guidelines	10
6. Convention on the Physical Protection of Nuclear Materials	10
7. Bilateral Arms Control Agreements	11
B. U.S. Nuclear Non-Proliferation Policy	11
1. Major Issues for U.S. Nuclear Non-Proliferation Policy	11
2. Congressional Components	12
a. The Atomic Energy Act of 1954 as amended	12
b. The Nuclear Non-Proliferation Act of 1978	13
c. The Foreign Assistance Act of 1961 as amended	13
3. Presidential Components	15
II. THE CHEMICAL AND BIOLOGICAL WEAPONS NON-PROLIFERATION REGIME	18
Summary	
A. The International Components: Treaties, Multilateral Export Controls, and Bilateral Arms Control	19
1. The Geneva Protocol	19
2. Convention on the Prohibition of the Development and Stockpiling to Bacteriological (Biological) and Toxin Weapons and on Their Destruction	20
3. The Australia Group	20
4. The United Nations	21
5. U.S.-Soviet Bilateral Actions	22
B. U.S. Chemical and Biological Non-Proliferation Policy	22
1. Major Issues	22
2. Congressional Actions	23
3. Executive Actions	24

III. THE MISSILE TECHNOLOGY CONTROL REGIME	26
Summary	
A. International Components of the Missile Non-Proliferation Regime	27
1. The Missile Technology Control Regime	27
2. Coordinating Committee on Multilateral Export Controls	28
B. U.S. Missile Non-Proliferation Policy	29
1. Major Issues	29
2. Congressional Actions	30
3. Presidential Actions	31
IV. COMPARISON OF THE NON-PROLIFERATION REGIMES	32
A. Organizational Structures of the Regimes	32
B. Enforcement and Penalties	34
C. Regime Membership	36
D. Reporting Requirements	37
E. U.S. Government Agencies	38
F. Congressional Oversight	39
G. Common Strategies	41
1. Building Consensus	41
2. Treaties	42
3. Export Controls	42
4. Sanctions	43
5. Arms Control	44
6. Assistance	44
7. Confidence Building Measures	45
8. Direct Action	45
9. Defenses	46
10. Underlying Causes	46
H. Lessons from Experience	47
1. U.S.-Soviet Relations	47
2. Multilateral Policies	48
3. U.S. Policies	48
TABLE 1	33
FIGURES 1 and 2	39
FIGURES 3 and 4	40

NON-PROLIFERATION REGIMES: A COMPARATIVE ANALYSIS OF POLICIES TO CONTROL THE SPREAD OF NUCLEAR, CHEMICAL AND BIOLOGICAL WEAPONS AND MISSILES

Executive Summary

United States leadership has been the catalyst for global efforts to control the spread of weapons of mass destruction. Continued U.S. leadership may serve as a model for other nations to follow and could encourage expansion of international consensus against the various forms of proliferation. Although the United States played a leading role in creating and maintaining the non-proliferation regimes, it may no longer be possible to sustain past levels of technological, economic, and military influence over the outcomes of international debates on proliferation issues. The uncertainty whether the Non-Proliferation Treaty will be extended in 1995 and under what conditions, the emergence of new suppliers of weapons and weapon technology, and the difficulties the United States is having maintaining the cooperation of member countries in the regimes, are examples of the new types of challenges facing U.S. non-proliferation policy. New and more refined methods of persuasion and consensus-building may be required to sustain the non-proliferation regimes.

The nuclear non-proliferation regime is more extensive and fully developed than those designed to control the spread of chemical and biological weapons and missiles. The regime is organized on the foundation provided by the Nuclear Non-Proliferation Treaty, and is supported by an international organization (the IAEA) dedicated to servicing the regime with verification mechanisms and offering positive incentives for compliance. The fate of the NPT, which has 141 member nations, will be decided at a review conference in 1995. An array of other treaties (Latin America and South Pacific nuclear free zones, Convention on Physical Protection of Nuclear Material, bilateral arms control), two reinforcing multilateral supplier groups (Zangger Committee, London Group), and a legacy of strong U.S. Presidential leadership and congressional support for nuclear non-proliferation policy combine to strengthen the regime. Key U.S. legislation (Atomic Energy Act of 1954 as amended, Nuclear Non-Proliferation Act of 1978, Foreign Assistance Act of 1961 as amended) defines the U.S. commitment to the regime and authorizes enforcement and oversight mechanisms for its implementation.

Support for the nuclear non-proliferation regime is not universal. Two of the five declared nuclear weapon states, China and France, have not signed the NPT, nor have several nations that are widely believed to possess some undeclared nuclear capabilities (India, Israel, Pakistan, South Africa). Other non-NPT signatories operate unsafeguarded uranium enrichment facilities (Argentina, Brazil) while still others that have signed the NPT (Iraq, Libya, North Korea) have taken steps necessary to acquire nuclear weapons. The emergence of certain non-NPT nations (China, India) as important new suppliers of nuclear materials and technology to developing nations further undermines the effectiveness of the regime. The voluntary multilateral supplier groups and unilateral U.S. export controls are critically undermined by non-NPT suppliers of nuclear materials and technology. One objective of U.S. nuclear non-proliferation policy has been to expand the membership of the NPT and the supplier groups. U.S. relations with certain non-NPT countries and certain NPT signatories who engage in suspicious nuclear activities may be affected by strict enforcement of U.S. nuclear non-proliferation laws and policies. The case of Pakistan is viewed by some as an important test case for U.S. non-proliferation policy.

Other critical challenges facing the nuclear non-proliferation regime include: linkage by some NPT signatories between the perceived lack of progress towards superpower disarmament and the vote to extend the NPT in 1995; preserving and perhaps expanding the inspection authority of the IAEA safeguards system; preserving and perhaps expanding participation and enforcement of multilateral and unilateral export controls on nuclear commerce, especially in connection with the integration of the European Community in 1992.

The chemical and biological regime is structured loosely around two treaties -- the Geneva Protocol of 1925, which prohibits the use but not the stockpiling of chemical weapons, and the Biological and Toxin Weapons Convention, which outlaws the use, development, production, and stockpiling of biological weapons. Some analysts suggest that chemical and biological weapons should not be combined in a single regime, but should be addressed separately. The regime lacks enforcement mechanisms and depends most heavily on voluntary multilateral supplier export guidelines (the Australia Group) and unilateral export controls for substantive action to control international commerce in chemicals. Recent adjustments of U.S. chemical export policies and regulations as part of President Bush's Enhanced Proliferation Control Initiative were intended to improve the effectiveness of U.S. chemical export controls. However, growing foreign availability of chemicals detracts from multilateral and unilateral U.S. efforts to restrict chemical exports.

U.S.-Soviet bilateral negotiations and parallel discussions in the U.N. Conference on Disarmament suggest the possibility of reaching agreement on a global Chemical Weapons Convention in the foreseeable future. Such a treaty could be accompanied by inspection and enforcement mechanisms similar to those already in place in connection with the NPT.

The missile technology control regime consists almost exclusively of multilateral export control groups (CoCom, MTCR), and support for the regime is limited to a relatively small number of technologically advanced nations. The MTCR suppliers group has 15 members. The regime lacks international enforcement and verification mechanisms, and is not supported by major treaties or international institutions. U.S. law contains provisions for sanctions against violators of the regime's export control policy. Proliferating countries have not been brought into a cooperative relationship with the supplier-dominated regime, although a few have been encouraged to suspend missile development programs. Efforts to control the spread of missiles and missile-related technology have been characterized as "too little too late" -- a variety of missiles are available from many sources, including several developing countries with indigenous missile production capabilities. Problems associated with attempts to control exports of sensitive "dual-use" technologies, such as computers and advanced electronic components, are especially acute with respect to missile-related technology, much of which is used extensively for commercial and industrial purposes.

The missile technology control regime has been most successful in constraining the spread of the most sophisticated missile-related technology. Options for reinforcing the regime include: formalizing commitments to enforce supplier controls, expanding the membership of the MTCR suppliers group, offering positive and negative incentives for cooperation with the regime, focusing restrictions on certain qualitative missile characteristics such as range, accuracy, and payload, and selective deployment of defensive systems.

No single approach or strategy seems adequate to address the multi-faceted problems of non-proliferation policy. While some strategies seem best suited for particular circumstances, each of the non-proliferation regimes will probably benefit from a sustained and coordinated application of the full range of existing strategies and approaches. Common strategies which contribute to all three of the regimes are: consensus building, multilateral and bilateral treaties, multilateral and unilateral export controls, positive and negative incentives such as assistance and sanctions, arms control, confidence building measures, direct action, defenses, and other measures designed to address the underlying causes of instability and insecurity.

In the case of each of the regimes, a connection exists between the extent to which the regime incorporates the full range of available strategies and its overall effectiveness. The nuclear regime has employed to some degree all of the strategies cited. By comparison, the chemical and biological regime and the missile regime have not yet achieved sufficient international consensus to facilitate a more complete development of particular strategies. For example, treaties comprise a major structural component of the nuclear regime, but are less central to the other regimes. Only the nuclear regime is serviced by an international agency, the IAEA, which also provides the regime with a verification mechanism as well as a conduit for positive and negative incentives for compliance. Furthermore, U.S. laws regarding nuclear trade and cooperation (AEA of 1954, FAA of 1961, NNPA 1978) also provide a range of positive and negative incentives for compliance. By contrast, the chemical and biological weapons and the missile regimes are heavily dependent on voluntary supplier export controls as their main strategy for stemming proliferation.

These strategies probably can not stop the proliferation of weapons of mass destruction. No strategy, or combination of strategies, is leakproof. However, experience suggests that a coordinated combination of these strategies can successfully slow proliferation to protect vital U.S. interests.

Non-proliferation has not always been the top priority for U.S. foreign and national security policy, nor will it be in the future. Other strategic and economic interests have at times prevailed over non-proliferation considerations. The priority that the United States assigns for its proliferation policies may send a signal to other nations. If the United States pursues strategic and/or commercial interests despite the negative consequences that such action may have for proliferation, other countries are likely to do the same. If, however, the United States appears willing to make certain foreign policy and security objectives subordinate to non-proliferation goals, other nations will be more likely to join an international consensus against proliferation. Slowing the spread of weapons of mass destruction will not be achieved without sacrifice.

In addition to clarifying the priority of non-proliferation within the context of other U.S. interests, the implementation of U.S. non-proliferation policies could benefit from further refinements of interagency coordinating procedures. Authority for non-proliferation issues is dispersed throughout numerous U.S. agencies and offices. Oversight responsibilities in the Congress are similarly disaggregated. While a degree of jurisdictional redundancy may be desirable, more clearly defined lines of authority and improved interagency coordination could help to remove some of the present uncertainties associated with non-proliferation policies. Recent expansion of personnel and resources at the State Department, Defense Department,

ACDA, and intelligence agencies indicate an increased concern for proliferation issues. Other agencies with front-line responsibility for implementing and enforcing policy (U.S. Customs Service, intelligence agencies) will need resources commensurate with the tasks assigned them. New initiatives will probably require new resources. High-priority proliferation issues can benefit from receiving the appropriate level of attention from top level officials. The development and concentration of expertise on the specific problems of each of the three regimes can help to prepare U.S. responses to future developments. Effective regime maintenance may depend on close coordination between the agencies, offices, and staffs trained to manage the various aspects of non-proliferation policy.

Ultimately, the U.S. can opt to strengthen the regimes it was instrumental in creating, to allow them to erode, or to maintain them at their present levels. Any decision to maintain or strengthen the regimes will necessitate continuing to cobble together combinations of multilateral, bilateral, and unilateral half-measures and partial solutions. The U.S. in concert with its allies may wish to add new layers to the regimes, including the addition of new multilateral treaties, agreements, international institutions, and new U.S. legislation intended to fill gaps in the regimes. The history of arms control diplomacy commends such an incremental approach. Experience suggests that deploying the full range of approaches simultaneously across multiple venues is the best option for sustaining the three non-proliferation regimes. In all cases, U.S. leadership may be decisive.

NON-PROLIFERATION REGIMES: A COMPARATIVE ANALYSIS OF POLICIES TO CONTROL THE SPREAD OF NUCLEAR, CHEMICAL AND BIOLOGICAL WEAPONS AND MISSILES

INTRODUCTION

The Issue. This report compares the international regimes which have been organized to control the proliferation of weapons of mass destruction. For many years, proliferation issues were considered almost exclusively in relation to the spread of nuclear capabilities. Proliferation now includes a much wider range of issues. The spread of weapons of mass destruction and the means to deliver them over great distances is emerging as one of the foremost potential threats to American national security interests in the post Cold War era. On March 7, 1991 the White House issued a statement stating, "Saddam Hussein's use of chemical weapons against his own citizens, his use of SCUD missiles to terrorize civilian populations, and the chilling specter of germ warfare and nuclear weapons have brought home the dangers proliferation poses to American interests and global peace and stability." Future international efforts to control or slow the spread of weapons of mass destruction may depend on continued U.S. leadership.

Regimes. The term "regime" refers to collections of multilateral, bilateral, and unilateral actions relating to the establishment, recognition and reinforcement of international norms of behavior. The international components of non-proliferation policy include treaties, multilateral and bilateral agreements, and other formal and informal agreements and understandings. U.S. non-proliferation policy consists mainly of legislation enacted by the Congress and Presidential policies, statements, determinations, and actions. The comparison provides a framework for evaluating the strengths and weaknesses of the non-proliferation regimes and for evaluating options for U.S. policy.

I. The Nuclear Non-Proliferation Regime

Summary

The nuclear non-proliferation regime is the most fully developed of the regimes under consideration. The nuclear non-proliferation regime is comprised of several major treaties, extensive multilateral and bilateral diplomatic agreements, its own international organization (the IAEA), and is supported by an international consensus against the further spread of nuclear weapons. U.S. leadership has played a decisive role in the development and nurturing of the regime.

In 1962 President Kennedy warned of the possibility that by the 1970s the United States could "face a world in which fifteen or twenty or twenty-five nations may have these weapons." In 1991, there are five declared nuclear weapons states (United States, Soviet Union, Great Britain, France, China) and four reportedly *de facto* nuclear weapons states (India, Israel, Pakistan, South Africa). Although the non-proliferation regime has not permanently frozen the membership of the nuclear club, it has restrained nuclear ambitions and solidified international consensus against the unrestrained spread of nuclear weapons. Combinations of positive and negative incentives, regular inspections of nuclear materials, multilateral and unilateral export controls, global and regional security arrangements, bilateral arms control agreements, and unilateral U.S. policies reinforce the consensus. A similar consensus is absent from the chemical, biological, and missile regimes.

Nevertheless, the nuclear non-proliferation regime has not prevented some nations from seeking to acquire the wherewithal necessary to develop nuclear weapons. Two of the five declared nuclear weapons states have not signed the Nuclear Non-Proliferation Treaty (China, France), nor have the four nations reported to possess some undeclared nuclear weapons capability (India, Israel, Pakistan, South Africa). Several other nations that have not signed the NPT have operated uranium enrichment facilities capable of producing weapons-grade material (Argentina, Brazil). North Korea signed the treaty but has refused to complete an inspection agreement with the IAEA as required by the treaty. Still other nations (Iraq, Libya) that signed the treaty have taken steps towards acquiring nuclear weapons.

The nuclear non-proliferation regime faces a number of potentially damaging shortcomings. One of the most critical challenges for the regime is the conditioning by a group of NPT signatories of the extension of the NPT in 1995 on the signing of a comprehensive test ban by the nuclear weapons states. The United States opposes a test ban while the Soviet Union supports it. Another issue for the nuclear regime is the limitations of the International Atomic Energy Agency and its inspection system, which lacks sufficient resources or authority to expand the scope of its operations. Finally, the emergence of new suppliers of nuclear technology and materials to the Third World could undermine multilateral and unilateral efforts to control international nuclear exports.

A. THE INTERNATIONAL COMPONENTS OF THE NUCLEAR NON-PROLIFERATION REGIME: TREATIES AND OTHER UNDERSTANDINGS

1) Treaty on the Non-Proliferation of Nuclear Weapons, entered into force March 5, 1970

The Non-Proliferation Treaty, or NPT, is the heart of the nuclear non-proliferation regime. President Bush in March 1990 stated that the NPT "represents the primary legal barrier to nuclear proliferation and thus constitutes a principal foundation of international security." The NPT seeks to freeze the number of nuclear weapons states (NWS) at five -- the United States, the U.S.S.R., the U.K., France, and China. One hundred and forty one nations are parties to the Treaty, including three nuclear weapons states. (U.S., U.S.S.R., U.K.) In signing the NPT, non-nuclear weapons states (NNWS) pledge not to acquire nuclear weapons in exchange for a pledge by the NWS not to assist the development of nuclear weapons by any NNWS and to facilitate "the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy."¹ NWS also agree to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament. . ."²

To assure that sensitive nuclear materials and technologies are not illegally diverted from civilian to military purposes, the NPT stipulates that member states must comply with the International Atomic Energy Agency's (IAEA) system of safeguards and inspections. Each NPT member-nation negotiates an agreement with the IAEA to submit all declared nuclear materials in its possession to regular inspections to assure that nuclear materials have not been diverted to military purposes. Thus, the benefits of civilian nuclear technology are linked to compliance with the Treaty. The linkage of positive incentives with verification requirements is a feature of the NPT regime that is not duplicated in the chemical and biological or the ballistic missile control regimes.

The NPT has succeeded in building and maintaining international consensus against the spread of nuclear weapons. Its coupling of nuclear trade with the IAEA inspection and verification system is seen as an essential component of an effective non-proliferation regime. However, the NPT has not prevented the development of nuclear weapons by several nations that have not signed the Treaty. Nor has the NPT prevented Western firms from assisting unsafeguarded nuclear programs. India, Pakistan, Israel, and South Africa are generally considered by many analysts to be *de facto* NWS, and Argentina, Brazil, Iran, Iraq, Libya, North Korea, and Taiwan have taken significant steps towards the acquisition of a nuclear weapons capability. Several of these nations are emerging as potential nuclear suppliers. The growing pattern of cooperation among proliferators of nuclear as well as other military technologies threatens to undermine international non-proliferation policy.

¹ NPT, Article IV-2.

² NPT, Article VI.

International review conferences of the NPT are convened at 5-year intervals. Previous review conferences, including those held in 1980, 1985, and 1990, have become deadlocked over contentious issues such as the perception by some Third World nations that assistance in the development of nuclear technology has been inadequate, and criticism of the lack of progress towards nuclear disarmament. Although the 1985 review conference was reported to have been less divisive, the 1990 conference deadlocked over demands for the NWS to sign a comprehensive test ban agreement.³ The 1995 review conference will decide whether the NPT will continue in force "indefinitely, or shall be extended for an additional fixed period or periods."⁴ The 1995 review conference may represent a critical juncture for the preservation of the NPT and its role as a main pillar of the nuclear non-proliferation regime.

2) The Statute of the International Atomic Energy Agency (IAEA), entered into force July 29, 1957

With its roots in President Eisenhower's 1953 Atoms for Peace proposal, the IAEA represents a core element of the nuclear non-proliferation regime. The IAEA is a U.N.-affiliated international organization which serves the international community in a dual capacity as a facilitator for the transfer of peaceful nuclear technology to developing nations and as the primary verification mechanism for the Non-Proliferation Treaty. The Agency provides assistance to nations which have pledged as parties to the NPT not to acquire nuclear weapons. The Agency has 110 members.

The IAEA statute states as its main objectives "to accelerate and enlarge the contribution of atomic energy to peace, health, and prosperity throughout the world" and to "ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose." The dual nature of the IAEA's mission provides both positive and negative incentives for achieving non-proliferation objectives.

IAEA inspectors regularly visit nearly 900 nuclear facilities in over fifty countries to verify the disposition of nuclear materials and to assure that safeguarded materials have not been diverted for military purposes. No confirmed diversions have been reported by the IAEA in 25 years of inspections. However, nuclear proliferation has occurred outside of the IAEA system in nations that do not permit IAEA inspections of certain critical nuclear facilities. Non-NPT nations operating unsafeguarded nuclear facilities include India, Pakistan, Israel, North Korea, Argentina, Brazil, and South Africa.

³ See Warren Donnelly, *The Nuclear Non-Proliferation Treaty: Failure of The Fourth Review Conference*, CRS Issue Brief 90092; and Leonard Spector and Jacqueline Smith, "Deadlock Damages Nonproliferation," *The Bulletin of the Atomic Scientists*, December, 1990, p. 39; William Epstein, "Conference a Qualified Success," *ibid*, p. 45.

⁴ NPT Article X-2

Despite its shortcomings, the evolving system of IAEA safeguards is viewed by some analysts as a promising model for future international regime-building efforts to control the spread of other weapons of mass destruction.

3) Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco), entered into force April 22, 1968

The Treaty for the Prohibition of Nuclear Weapons in Latin America creates a "nuclear-weapons free zone" in Latin America. Protocol I of the Treaty obligates non-Latin American countries (U.S., U.K., Netherlands, France) to join the denuclearization provisions of the treaty with respect to territories in the zone "for which *de jure* or *de facto* they are internationally responsible." Protocol II represents a negative security pledge by the nuclear weapons states (China, France, U.S.S.R., U.K., U.S.) "not to use or threaten to use nuclear weapons against the Contracting Parties of the Treaty..."

The history of the Treaty illustrates some of the potential benefits as well as some of the problems associated with such comprehensive regional arms control agreements. Although Latin America has so far remained a nuclear-weapons free zone, Argentina and Cuba have not ratified the Treaty, and Brazil has made its adherence to the Treaty contingent on the full participation of all Latin American nations. Thus, Argentina and Brazil continue to operate unsafeguarded nuclear enrichment facilities and both nations are thought to be capable of developing nuclear weapons.

The election of civilian governments in both countries during the 1980s eased somewhat the intensity of the rivalry between the military nuclear programs of Argentina and Brazil. Since 1987 the two countries have conducted reciprocal visits to each other's nuclear facilities. On November 28, 1990 the Presidents of Argentina and Brazil signed a Declaration on Common Nuclear Policy which would ban atomic weapons production and testing.⁵ IAEA officials have expressed optimism that both nations will in the near future negotiate safeguards agreements to allow regular inspections of all nuclear materials in their possession.

Confidence-building measures such as the Argentine-Brazil reciprocal visits may play a key role in future efforts to restrain other regional arms races. Such agreements may help to break the momentum of regional arms races in Asia and the Middle East in which nuclear proliferation is closely linked to the proliferation of other weapons of mass destruction.

4) South Pacific Nuclear Weapons Free Zone (Treaty of Rarotonga) entered into force December 11, 1986

The nations of the South Pacific have sought to make the region a nuclear-weapons free zone. The Treaty prohibits the manufacture or acquisition of nuclear weapons, as well as the possession of nuclear weapons by its signatories outside of the Pacific region. The Treaty also prohibits the stationing of nuclear weapons within the region, but does not explicitly forbid visits by nuclear-armed foreign military ships and aircraft.

⁵ INFCIRC/388/20 December 1990

France has refused to end its nuclear testing in the Tuamotu archipelago of French Polynesia and has not signed the protocols to the Treaty which prohibit such tests. The U.S. has also declined to sign the Treaty. Nevertheless, regional security agreements such as the Treaty of Rarotonga and the Treaty of Tlatelolco may contribute to future regime-building efforts.

5) Nuclear Suppliers Guidelines (NSG): The Zangger Committee and the London Club

In the early 1970s a group of seven nuclear supplier nations formed the Nuclear Exporters Committee, known as the Zangger Committee, to reinforce and assist in the implementation of the restrictions on nuclear trade included in the NPT. In 1974 the Zangger Committee compiled a list of "dual use" nuclear export items that could be potentially useful for military applications of nuclear technology. The nuclear suppliers agreed that the transfer of items on the list would "trigger" application of IAEA safeguards to assure that the items were not used for the development of nuclear explosives. The Zangger list included reactors, reactor components, and certain nuclear materials such as heavy water. Membership was voluntary and implied no formal commitments for enforcement of the guidelines.

The major nuclear suppliers were joined at their 1975 meeting in London by eight additional supplier nations. In 1978 the London Club, as the group was known, announced that its members had adopted a common policy regarding nuclear exports.⁶ Although similar to the Zangger list, the London Club adopted somewhat more restrictive guidelines for the export of items on the "trigger list." The new guidelines required the provision of physical security for transferred nuclear facilities and materials, the acceptance of safeguards on replicated facilities (based on a design transferred from a London Club member-state), and prohibitions against retransfer of nuclear exports to third parties.

The Nuclear Suppliers Guidelines contribute to the formulation of international consensus regarding nuclear trade and commerce. The voluntary NSG augment the international nuclear non-proliferation regime by seeking to harmonize and coordinate separate national export control policies. However, examples of successful illegal, covert, and suspicious nuclear trade involving Western firms and countries including Pakistan, India, Brazil, and Iraq underscore the limitations of voluntary export controls. Some developing nations have objected to the London Club because it further divides the technologically advanced nuclear "haves" from the "have nots" and creates an additional obstacle to their nuclear development. As a voluntary association, no formal administrative structure exists to coordinate the separate nuclear trade policies NSG member states. NSG members meet irregularly and have adopted no formal mechanisms for monitoring and enforcing the suppliers guidelines. The London Group met in March 1991 for the first time since 1978.

6) Convention on the Physical Protection of Nuclear Material, entered into force February 8, 1987.

⁶ INFCIRC/254, Jan. 16, 1978.

The Convention on the Physical Protection of Nuclear Material codifies international legal norms for the safeguarding of nuclear commerce. The Convention outlines international security requirements for the protection of nuclear materials against terrorism and provides for the prosecution and punishment of offenders of international nuclear trade law. Parties to the treaty agree to report directly or through the IAEA the disposition of nuclear materials being transported and agree to provide appropriate security during such transport. Similar treaty protections do not exist for chemical and biological materials or for missiles.

The first review conference for the Treaty will be convened in 1992, with additional reviews to be convened at intervals of not less than five years. Twenty-four nations, including the U.S. and the U.S.S.R., have ratified the Treaty.

7) Arms Control Agreements

Arms control agreements may also build support for the nuclear non-proliferation regime. For example, treaties such as the **Limited Test Ban Treaty**, the **ABM Treaty**, the **INF Treaty**, and other nuclear arms control agreements limiting aspects of "vertical" proliferation of nuclear weapons may advance the goals of "horizontal" non-proliferation policy by setting examples and demonstrating "good faith" on the part of the superpowers. Many nations have repeatedly called for the superpowers to fulfill the pledge contained in Article VI of the NPT to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date." The linkage between bilateral U.S.-Soviet nuclear arms control and non-proliferation has been emphasized by developing nations, recently led by Mexico, who have sought to link the extension of the NPT to a comprehensive test ban agreement. Thus, progress in superpower arms control is thought by some to be a means of facilitating the extension of the NPT in 1995.

Bilateral arms control agreements of the type pioneered by the United States and the Soviet Union may also play an important role in constraining regional arms races and reducing incentives for proliferation. Bilateral arms control agreements of might contribute to regional security arrangements in the Middle East, Asia, and Latin America.

B. U.S. NUCLEAR NON-PROLIFERATION POLICY: CONGRESSIONAL AND PRESIDENTIAL COMPONENTS

1) Major Issues for U.S. Nuclear Non-Proliferation Policy

U.S. congressional and Presidential actions will continue to play a central role in preserving and strengthening the nuclear non-proliferation regime. Although the U.S. no longer wields the same level of economic and technological superiority that it did during the genesis of the NPT regime, U.S. policy towards critical proliferation issues will strongly influence the direction of global responses to the spread of weapons of mass destruction and delivery systems. Critical issues before the Congress and the President include:

- (1) U.S. aid to Pakistan,
- (2) U.S. policy towards nations engaging in illegal or suspicious nuclear activities,

- (3) Vote on extension of the NPT at the Fifth NPT Review Conference in 1995,
- (4) Effective implementation of existing multilateral and U.S. export control policies,
- (5) Economic and political support for the IAEA and its safeguards system,
- (6) Linkage between progress in "vertical" and "horizontal" arms control, and
- (7) Linkage between the nuclear non-proliferation regime and the regimes to control chemical and biological weapons and ballistic missiles.

U.S. policy towards these issues will probably carry consequences for the international nuclear non-proliferation regime. For example, continued U.S. aid to Pakistan - in view of Pakistan's progress towards developing nuclear weapons - could signal a lower priority for U.S. non-proliferation policy. Similarly, the degree of vigilance with which controls on nuclear exports are enforced may indicate to other nations the importance that the U.S. Government places on non-proliferation as compared with other foreign policy objectives. Progress in superpower arms control, including a START agreement, a ban on the production of plutonium for nuclear weapons, and a comprehensive test ban are viewed by some observers as the types of good faith measures that will be required to achieve an extension of the NPT in 1995 on terms favorable to U.S. interests. Other observers have expressed reservations that progress in superpower arms control will necessarily secure the extension of the NPT. Further measures for strengthening the nuclear non-proliferation regime include strong support for the IAEA and its safeguards system, formal commitments from nuclear suppliers to require full-scope IAEA safeguards for nuclear exports, and renewed efforts to persuade non-NPT states such as Argentina, Brazil, Israel, and South Africa to sign the NPT.

2) The Congressional Component of U.S. Nuclear Non-Proliferation Policy

The congressional component of U.S. nuclear non-proliferation policy consists of legislation which defines the U.S. commitment to the non-proliferation regime and provides enforcement and oversight mechanisms for its implementation.⁷ The three main pillars of the congressional component are the Atomic Energy Act of 1954 as amended, the Nuclear Non-Proliferation Act of 1978, and the Foreign Assistance Act of 1961 as amended, which contains several key pieces of non-proliferation legislation.

a. The Atomic Energy Act of 1954 as amended (AEA)

The Atomic Energy Act of 1954 gave primary authority for the development and oversight of the government's nuclear programs to a civilian agency - the Atomic Energy Commission (AEC). The Energy Reorganization Act of 1974 abolished the AEC and divided its responsibilities between the Nuclear Regulatory Commission, which oversees and regulates civilian and commercial aspects of atomic energy, and the Department of Energy, which

⁷ See Zachary Davis and Warren Donnelly, *Nuclear Proliferation Policy: A Compilation of Basic Documents on U.S. Statutory and U.S. Executive Branch Components of Non-Proliferation Policy*, CRS Report for Congress, December, 1990.

operates the nuclear research laboratories and the nuclear weapons complex. The Atomic Energy Act of 1954 was designed to promote research and development while regulating the flow of militarily relevant information. The AEA established guidelines for the dissemination of scientific and technical information relating to the military and civilian uses of nuclear energy. Thus, the Act made distinctions between "restricted data" and other information useful in promoting the peaceful uses of atomic energy. The AEA also established a statutory framework for implementing U.S. export controls specifically on nuclear trade. By contrast, chemical, biological, and missile items are controlled under the broad authority of the Export Administration Act and the Arms Export Control Act. A major purpose of the Atomic Energy Act was to delineate governmental authority over the various aspects of nuclear development and commerce.

b. The Nuclear Non-Proliferation Act of 1978 (NNPA)

The NNPA adapted the dual role played internationally by the IAEA to U.S. nuclear export policy. The NNPA was intended to clarify and strengthen the U.S. role as a reliable supplier of nuclear technology and nuclear fuels. The maintenance of U.S. leadership and control over the international nuclear fuel cycle was seen as an effective means of restraining the spread of uranium enrichment and plutonium reprocessing facilities throughout the world. The NNPA further specified legal guidelines for the regulation of nuclear commerce and technical assistance by the U.S. Government. The Act requires recipient nations to accept full-scope safeguards on imports of U.S. nuclear technology and materials. These requirements create incentives for cooperation with U.S. nuclear non-proliferation policy.

Section 309(c) of the NNPA directs the President to enact procedures to control U.S. exports "which could be, if used for purposes other than those for which the export is intended, of significance for nuclear explosive purposes." Section 309(c) establishes jurisdiction over nuclear exports for the Departments of Commerce, State, Energy, Defense, and the Arms Control and Disarmament Agency. Section 601 requires the President to report annually to the Congress on the Government's efforts to prevent nuclear proliferation.

c. The Foreign Assistance Act of 1961 (FAA 1961) as amended.

The Glenn-Symington amendments, sections 669 and 670⁸ In 1976 Senator Symington sponsored legislation to add a section 669 to the Foreign Assistance Act of 1961. The amendment required the President to cut economic and military aid to countries that receive or supply the wherewithal for enriching uranium or for reprocessing spent nuclear fuel to extract plutonium unless all such nuclear facilities and materials are placed under the IAEA safeguards system. The President could waive the cutoff if he determined that "the termination of such assistance would have a serious adverse effect on vital United States interests" and "he

⁸ Warren Donnelly, *Pakistan and Nuclear Weapons*, CRS Issue Brief 86110; Richard P. Cronin, *Pakistan Aid Cutoff: U.S. Nonproliferation and Foreign Policy Considerations*, CRS Issue Brief 90149; Zachary Davis and Warren Donnelly, *Nuclear Proliferation Policy: A Compilation of Basic Documents on U.S. Statutory and U.S. Executive Branch Components of Non-Proliferation Policy*, CRS Report for Congress, December, 1990.

has received reliable assurances that the country in question will not acquire or develop nuclear weapons or assist other nations in doing so."⁹ Congress retained its authority to terminate or restrict assistance provided by a Presidential waiver.

President Carter used section 669 when he cut aid to Pakistan in 1979. In 1981 Congress, responding to the Soviet invasion of Afghanistan, provided new authority for the President to waive the cutoff of aid to Pakistan by amending section 620 of the FAA 1961. A new subsection 620E(d) (added by section 736 of P.L. 97-113, 95 STAT 1561) authorized a waiver of prohibitions on aid to Pakistan through September 30, 1987 if the President determined that "to do so is in the national interest of the United States." In 1987 Congress extended the President's waiver authority to April 1, 1990 and in 1990 extended it to April 1, 1991.

In 1977 Senator Glenn proposed an amendment to section 669 of the FAA of 1961 which also added a new section 670. The Glenn amendment separated the legislative mechanisms dealing with the wherewithal for uranium enrichment and plutonium reprocessing. The purpose of the Glenn-Symington amendments was to strengthen U.S. non-proliferation policy through the imposition of sanctions against nations seeking to develop a nuclear weapons capability.

The Pressler amendment. In 1985 the Senate passed the Pressler amendment to the FAA 1961. The amendment conditioned aid to Pakistan on a written Presidential determination to the Congress that "Pakistan does not possess a nuclear explosive device and that the proposed United States assistance program will reduce significantly the risk that Pakistan will possess a nuclear explosive device." President Reagan and President Bush supplied determinations pursuant to the Pressler amendment (section 620(E)(e) of the FAA of 1961) from 1985 to 1989, despite Pakistan's continued progress towards the development of nuclear weapons. In his 1989 determination President Bush expressed doubts about Pakistan's unsafeguarded nuclear program. The Administration has delayed making a certification for 1990. The President's waiver authority will expire on April 1, 1991.

The Solarz amendment. Another 1985 amendment to section 670 of the FAA of 1961 provided for the cutoff of economic and military aid to any country that illegally exports, or attempts to illegally export, nuclear wherewithal that would "contribute significantly" to the ability of a country to construct a nuclear device. The President can waive the cutoff if he certifies in writing to the Congress that the cutoff would be "seriously prejudicial to the achievement of United States nonproliferation objectives or otherwise jeopardize the common defense and security."

Other legislative actions. Other legislative mechanisms for controlling nuclear proliferation are included in the legislation listed below:

- * The Atomic Weapons and Special Nuclear Materials Rewards Act of 1955 as amended
- * The International Atomic Energy Participation Act of 1957 as amended

⁹ Foreign Assistance Act of 1961 as amended, section 669(b)(1)

- * The Euratom Cooperation act of 1958 as amended
- * The Arms Control and Disarmament Act Amendments of 1977
- * The International Bank for Reconstruction and Development Act of 1977 as amended, section 701
- * Congressional Advisory Resolution S.Res 94, 1977
- * The Export-Import Bank Act of 1945 as amended
- * Public Works for Water and Power Development and Energy Research Appropriation Act, 1978
- * The Department of Energy Act of 1978
- * Financial Institution Regulatory and Interest Rate Control Act of 1978, sections 1907, 1913
- * Authorization, Appropriations, Nuclear Regulatory Commission, Fiscal Year 1979, sec. 9
- * The Export Administration Act of 1979
- * Nuclear Waste Policy Act of 1982
- * Department of State Authorization Act of 1983, section 1007
- * Further Continuing Appropriations, 1983, Funds to the IAEA, section 159
- * Foreign Relations Authorization Act of 1985, section 142
- * Agreement for Nuclear Cooperation between the United States and China, 1985
- * The Comprehensive Anti-Apartheid Act of 1986 as amended
- * Foreign Relations Authorizations Act of 1987, section 704
- * The Anti-Terrorism Act of 1987

3) The Presidential Component of U.S. Nuclear Non-Proliferation Policy

The Presidential component of U.S. nuclear non-proliferation policy is comprised of policies, statements, determinations, and orders which have guided U.S. leadership in creating and sustaining the non-proliferation regime.

President Eisenhower laid the cornerstone of the non-proliferation regime in his Atoms for Peace speech to the United Nations General Assembly in 1953. Atoms for Peace set forth the guiding principles which led to the establishment of the IAEA in 1957. Eisenhower advocated the IAEA's dual role as a conduit for disseminating civilian nuclear technology and as an international institutional mechanism for verifying arms agreements. The extension of the U.S. nuclear umbrella to include European and Asian allies may have also been intended to preclude development of independent nuclear arsenals.

Presidents Kennedy, Johnson, and Nixon each made significant contributions in arms control, including the negotiation of the Limited Test Ban, the NPT, and the ABM Treaty. Proliferation issues attracted renewed interest in the wake of India's explosion of a nuclear device in 1974. India has not signed the NPT.

President Ford enunciated his administration's policy on nuclear proliferation in his statement on nuclear policy of October 28, 1976. President Ford initiated a shift in U.S. policy towards tighter controls on the export of uranium enrichment and plutonium reprocessing technology. Ford simultaneously sought to provide positive incentives for supporting the non-proliferation regime by expanding U.S. nuclear cooperation.

President Carter was active in his support for non-proliferation policy. President Carter, himself a nuclear engineer, stressed the importance of establishing international norms for the control of nuclear commerce. Carter worked with the Congress to consolidate and implement U.S. non-proliferation policy which included the passage of the Nuclear Non-Proliferation Act of 1978 and other statutory measures. President Carter cut off aid to Pakistan in 1979 as required by section 669 of the Foreign Assistance Act of 1961 as amended (the Glenn-Symington amendment) in response to Pakistan's suspicious nuclear activities and its refusal to open its production facilities to inspection by the IAEA.

The Soviet invasion of Afghanistan in 1979 prompted Congress to amend the Foreign Assistance Act of 1961 to authorize the President to waive the section 669 cutoff and provide assistance to Pakistan if the President determined that "to do so is in the national interest of the United States" (Section 620E).

President Reagan supported a somewhat more selective non-proliferation policy that eased certain restrictions on nuclear exports to U.S. allies with advanced nuclear programs. President Reagan outlined his non-proliferation policy in a White House statement on July 16, 1981. In February of 1982 President Reagan waived the section 669 cutoff of aid to Pakistan (Presidential Determination 82-7, February 10, 1982). The President's waiver authority expired April 1, 1991.

In accordance with the provisions of the Pressler amendment, President Reagan submitted annual written determinations to the Congress that "Pakistan does not possess a nuclear explosive device and that the proposed United States assistance program will reduce significantly the risk that Pakistan will possess a nuclear explosive device" for the years 1985 through 1988.

President Bush has continued the non-proliferation policies of the Reagan Administration. The Bush administration's non-proliferation policy was initially articulated in its 1989 and 1990 annual reports to the Congress, which is required in accordance with section 601 of the NNPA of 1978.

The Bush Administration has expanded the definition of proliferation to include nuclear, biological and chemical weapons as well as missiles. Oversight of these proliferation dangers has been consolidated in the office of Reginald Bartholomew, Undersecretary of State for Security Assistance, Science, and Technology. The Bush Administration has also sought to streamline the complex and sometimes inconsistent administration of U.S. export controls and to resolve tensions between the government agencies with authority for implementing export control policies. In adjusting U.S. export control policy to the post Cold War environment, the Bush Administration has sought improved coordination between the Departments of State, Defense, Commerce, and Energy in the implementation of export licensing and controls for nuclear commodities.¹⁰ The apparent relaxation of certain U.S. export control regulations, however, has raised concerns about the removal of existing restrictions on the export of sensitive "dual use" technologies to nations with active nuclear weapons programs.

¹⁰ See Glennon J. Harrison and George Holliday, *Export Controls*, CRS Issue Brief 87122,

In Nov. 1990, President Bush pocket-vetoed the Export Administration Act of 1990 because it would have required the President to impose sanctions against violators of U.S. chemical and biological non-proliferation laws (H.R.4653). Following a promise to implement tough new non-proliferation policies, the White House announced its Enhanced Proliferation Control Initiative on Dec. 13, 1990. The initiative seeks to apply existing regulations for nuclear commerce to control the export of materials which may be useful for making chemical and biological weapons and missiles.

On March 7, 1991 the White House announced new regulations intended to enhance efforts to control the spread of weapons of mass destruction.¹¹ The new regulations included new licensing requirements for nuclear exports and updated the Department of Commerce's Nuclear Referral List of controlled commodities.

The President certified in 1989 that Pakistan does not possess a nuclear explosive device (Presidential determination 90-1, October 5, 1989), but simultaneously expressed concerns about Pakistan's continuing efforts to develop nuclear weapons. The Bush Administration delayed the certification that was required by April 1, 1990 for continuing aid to Pakistan and decided to withhold aid until the government of Pakistan provides evidence that it does not possess a nuclear device. The President's authority to waive the cutoff of aid to Pakistan expired on April 1, 1991.

¹¹The White House, Office of the Press Secretary, March 7, 1991; Federal Register, March 13, 1991, 10767.

II. The Chemical and Biological Weapons Non-proliferation Regime

Summary

The chemical and biological weapons (CBW) non-proliferation regime is the oldest of the three regimes under consideration. The regime has evolved from the Geneva Protocol of 1925 which was negotiated partially in response to the use of chemical weapons during the First World War. The Protocol bans the use, but not the production and stockpiling, of chemical weapons. One hundred and twenty-five nations have signed the Geneva Protocol. The CBW regime is comprised of a web of treaties, multilateral export controls, bilateral arms agreements, and U.S. laws and policies.

The number of countries possessing chemical and biological weapons continues to grow. The rate of proliferation is highest among Third World nations where the technology to produce chemical weapons is more accessible than that which is required to produce nuclear weapons. Testifying before the Senate Governmental Affairs Committee in 1989, Director of Central Intelligence William Webster asserted that approximately 20 nations possess or may be developing a chemical weapons capability.

Though there is currently little public evidence of biological weapons proliferation, U.S. intelligence sources have indicated that at least 10 nations may possess or may be attempting to develop these weapons. International and U.S. efforts to control the spread and use of biological weapons have generally been integrated as parts of the CW regime. However, some analysts argue that chemical and biological weapons present distinctly different problems and should be considered separately.

Chemical weapons non-proliferation policy is complicated by the fact that many chemicals that can be used to produce chemical weapons also have peaceful, non-military uses. The problem of controlling "dual use" materials and technology is compounded by the widespread distribution of chemical production facilities throughout the world. Like the nuclear non-proliferation regime, a major component of the chemical non-proliferation regime consists of multilateral and unilateral export controls on specified items and technology. However, export controls lose their effectiveness as developing nations become less dependent on the industrialized nations and increasingly capable of developing chemical producing facilities indigenously.

Efforts to control the spread of chemical weapons are weakened by the lack of resolute international consensus against the development and use of chemical weapons. Some of the regime's shortcomings were demonstrated at the Paris Chemical Weapons Conference in 1989. Held at the ministerial level and in the wake of Iraqi CW use against Kurdish dissidents, the conference was intended to reaffirm the international prohibition of chemical weapons use, and to explore ways to discourage their use in the future. The conference demonstrated, however, that international opinion does not unanimously condemn chemical weapons use or proliferation. The conferees chose not to address Iraqi CW use directly. France denied visas to the Iraqi Kurdish delegation, and only the Iranian representatives called for the censure of Iraqi actions. Several nations defended the right to produce chemical weapons, citing them as

a necessary counterbalance to the nuclear weapons of more developed nations, and calling for a linkage of chemical and nuclear disarmament.

The voluntary nature of export controls on certain chemicals also weakens the effectiveness of the regime. Standards for monitoring and enforcing voluntary controls vary considerably from country to country. With no international organization equivalent to the IAEA in place to monitor agreements, and no formal treaty commitments to ban production and stockpiling of chemical weapons, some fear that developing nations will increasingly consider chemical weapons as a deterrent to nuclear weapons - the poor nation's nuclear arsenal. Such linkages between the underlying justifications for possessing chemical and nuclear weapons further complicate non-proliferation efforts.

The international component of the CBW regime consists of treaties, multilateral export controls, and bilateral U.S.-Soviet arms control agreements. U.S. policy consists of legislation authorizing export controls, administration of export controls by government agencies, and Presidential actions and arms control initiatives.

A. THE INTERNATIONAL COMPONENTS OF THE CHEMICAL AND BIOLOGICAL WEAPONS NON-PROLIFERATION REGIME: TREATIES, MULTILATERAL EXPORT CONTROLS, AND BILATERAL ARMS CONTROL

1) The Geneva Protocol of 1925

The Geneva Protocol of 1925 prohibits the use in war of asphyxiating or poisonous gases and liquids, and all bacteriological (biological) methods of warfare. No similar legal restriction exists for nuclear weapons or missiles. Within the text of the Protocol, the qualifying phrase "in war" has been interpreted by some to mean that the prohibition applies only to conflicts between nation states, and does not address use in civil conflicts within a signatory's borders. The Protocol does not prohibit the production, stockpiling, or transfer of chemical and biological weapons. It has no verification or enforcement provisions, though allegations of violations can, and have been, brought to the United Nations.

The Protocol is often called a "no first use" agreement because many nations, such as the U.S., ratified it with the reservation that it would cease to be binding if any enemy state failed to observe the prohibitions. In addition, some nations have made the reservation that they consider the prohibitions binding only with regard to other nations that have ratified the Protocol. Some Arab nations specified that their ratification of the Protocol did not constitute recognitions of or involve treaty relations with Israel, a reservation which might be interpreted to mean they would not consider the Protocol binding in a conflict with Israel.

2) Convention on the Prohibition of the Development and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, entered into force March 26, 1975.

The Geneva Protocol of 1925 banned only the use of biological weapons. The Biological and Toxin Weapons Convention expanded the ban to include the development, production, stockpiling, and acquisition of biological agents or toxins that have no justification for defensive or peaceful purposes. No similar legal restriction exists for chemical weapons or missiles. Each signatory must destroy, or divert to peaceful purposes all agents, toxins, weapons, equipment, or means of delivery for the hostile use of such agents. Each signatory also agrees not to transfer, or otherwise assist other countries or international organizations in acquiring any prohibited commodities. The Convention also calls for the open exchange between signatories of information on permitted biological and toxin research. The Convention has no verification provisions, though it directs that complaints of violation be submitted to the United Nations Security Council for investigation. A review conference is planned for September 1991.

3) Australia Group

In response to an Australian initiative in 1984, member nations of the Organization for Economic Cooperation and Development (OECD) joined together to establish voluntary export controls on certain chemicals. The "Australia Group," an informal organization open to any nation seeking to stem CW proliferation, now has twenty member states: the twelve members of the European Community plus Australia, Austria, Canada, Japan, New Zealand, Norway, Switzerland, and the United States. The Commission of the European Community is also a member. Each nation has established controls on the export of certain chemicals deemed useful in the production of chemical weapons. The controls vary. For example, some governments have established formal procedures to prohibit or restrict exports. Other governments rely on voluntary notification from companies that receive export order for chemicals on the export control list. The informal nature of the Group and the varying abilities of nations to track and control their exports has hampered its effectiveness. Whereas the Australia Group today comprises primarily the Western industrialized nations, it is companies in these nations that have been the source of the materials and technical assistance that have engendered CW proliferation.¹²

In September 1989 Australia hosted a conference of government and chemical industry officials from sixty-six countries. This was the first large-scale conference on CW proliferation to include private industry representatives. The conference concluded with a joint industry statement that pledged cooperation to stem CW proliferation, called for a global CW treaty, and offered any assistance required in the course of ongoing treaty negotiations. Another meeting

¹² Steven R. Bowman, *Chemical Weapons Proliferation: Issues for Congress*, CRS Issue Brief 90084; Elisa Harris, "Stemming the Spread of Chemical Weapons," *The Brookings Review*, Winter 1989/90; Thomas Stock and Ronald Sutherland, eds., *National Implementation of the Future Chemical Weapons Convention*, (New York: Oxford University Press, 1990).

of the Group in December 1990 agreed to place additional precursor chemicals on the list of restricted chemical exports and discussed expanding the membership of the Group to include Eastern European nations.

Like the London Group of nuclear suppliers, the Australia Group is a loosely knit association of chemical supplier nations whose goal is to prevent diversion of chemical exports for military purposes. In contrast to the nuclear suppliers group, the Australia Group is not reinforced by an international agency such as the IAEA and involves no formal verification or enforcement measures. Like the NPT regime, however, several key suppliers do not participate as member of the Australia Group. Expanding the membership of the Group and formalizing the members' commitments to enforce restrictions on certain exports has been suggested as a way to strengthen the chemical weapons non-proliferation regime. In February 1991 the Bush Administration announced new restrictions on exports of chemicals and equipment useful in the manufacture of chemical and biological weapons.

4) The United Nations

Since 1968, the Conference on Disarmament, an independent arm of the United Nations, has carried on negotiations to ban chemical weapons. Within the Conference on Disarmament, the Chemical Weapons Ad Hoc Committee holds responsibility for drafting a convention banning the production, stockpiling, and use of chemical weapons. The Ad Hoc Committee comprises, in turn, five working groups each responsible for a particular area of negotiations: (1) verification; (2) legal and political problems; (3) international organizational structure; (4) technical aspects; and (5) transition.

Since 1980, the Conference on Disarmament Ad Hoc Committee on Chemical Weapons has focused on the negotiation of a global chemical weapons convention (CWC) banning all chemical weapons. A draft CWC, or rolling text, has been prepared.¹³ The draft CWC is a comprehensive treaty that would seek to delegitimize chemical weapons by banning their production, stockpiling, and use. Unlike the NPT, which discriminates between nations that possess nuclear weapons and those that do not, the CWC would apply the same restrictions equally to all nations. Verification of a CWC would be performed by an international agency modeled after the IAEA.

In recent years, the CWC negotiations have been marked by an increasingly accommodating attitude on the part of the Soviet Union, more active participation by Third World nations, and charges that the United States has not pursued negotiations with full vigor. President Bush and Secretary Baker continue to express their commitment to CWC, but have conditioned U.S. acceptance of a CWC on maintenance of 2 percent of the U.S. stockpile until all CW-capable nations ratify the treaty. Some analysts attribute this condition to the higher priority placed on U.S.-Soviet bilateral negotiations, and to concerns of some in the Bush Administration about verification and enforcement of a global convention.

¹³ Thomas Stock and Ronald Sutherland, eds., *National Implementation of the Future Chemical Weapons Convention* (New York: Oxford University Press, 1990)

Other U.N. Actions. In 1989 the United Nations established a six-nation working group (the United States, Soviet Union, France, Sweden, Egypt, and Bulgaria) to draft a procedure to be followed by the U.N. Secretary-General for investigating suspected use of chemical and biological weapons. Currently, the Secretary-General may order an investigation at his discretion. The new procedure is expected to **require** the Secretary-General to order an investigation when presented an allegation by any member nation. This approach is intended to relieve the Secretary-General of the political pressure inherent in deciding whether an investigation is warranted. It is hoped that the international pressure insured by such an automatic procedure will help deter nations from developing or using chemical weapons.

5) U.S.-Soviet Bilateral Actions

During his address to the U.N. General Assembly on September 25, 1989, President Bush presented a CW arms control proposal to the Soviet Union. The President said that the United States would (1) destroy 80% of its CW stockpile prior to signing of a global convention, if the Soviet Union agrees to do the same and agrees to an adequate inspection regime; and (2) destroy 98% of its stockpile within eight years of a convention coming into force if the Soviets join the convention. The Soviet Union responded that the U.S. proposals were encouraging, but noted its own declared cessation of chemical weapons production, and called upon the U.S. to cease its new binary chemical weapons production.

On June 1, 1990, the United States and the Soviet Union signed an agreement covering the production of chemical weapons and the destruction of current CW stockpiles. Negotiations over verification and destruction procedures have not been completed, missing the December 31, 1990 deadline, and postponing submission of the agreement to Congress.

B. U.S. CHEMICAL AND BIOLOGICAL NON-PROLIFERATION POLICY

1) Major Issues for Chemical and Biological Weapons Control

Restrictions on suppliers are a central component of the regime. Nevertheless, the overall effect of U.S. export controls may be muted by the more lenient export policies of other nations. Germany, a U.S. ally often mentioned in connection with liberal export control policies which contributed significantly to Iraq's chemical and nuclear programs, has undertaken major reforms of its export policies. Similar reforms and a renewed commitment to multilateral export controls could help to reduce the spread of chemical weapons. Despite such efforts, an emerging pattern of cooperation among certain developing countries - some with indigenous chemical production capabilities - seeking to acquire chemical, biological, and other weapons of mass destruction may detract from unilateral, bilateral, and multilateral efforts to stop the spread of these weapons.

Some analysts suggest that restrictions and penalties on suppliers should be complemented with stronger penalties against those who would use chemical or biological weapons. An international commitment to provide assistance to victims of a chemical attack might help to diminish the perceived military utility of such weapons.

Regional security arrangements may also help to build confidence and reduce tensions that can fuel arms races. Bilateral arms control agreements such as those agreed to by the U.S. and the U.S.S.R. to control nuclear weapons may contribute to the easing of tensions in areas like the Middle East. Comprehensive regional security structures would take into consideration linkages between chemical, biological and nuclear weapons and seek to address underlying security concerns that provide the rationale for arms races. The U.N. Conference on Disarmament has outlined a plan for the Middle East.

While a CWC may not universalize the consensus against chemical weapons, it may help to delegitimize them and could help to strengthen international legal norms against the use and possession of chemical weapons.

2) Congressional Action

The Export Administration Act of 1979 (EAA) provides the primary authority for controlling U.S. exports. The EAA of 1979 expired on September 30, 1990. Citing his objections to the sanctions that would have been required by the Omnibus Export Amendments Act of 1990 (H.R. 4653), the President vetoed legislation in the 101st Congress intended to strengthen U.S. chemical, biological, and missile non-proliferation policy. On Nov. 16, the President issued an executive order extending his authority under the Export Administration Act of 1979 and outlined a series of measures to address the "extraordinary threat to the national security and foreign policy of the United States" constituted by the proliferation of chemical and biological weapons.¹⁴ New legislation, the Chemical and Biological Weapons Control and Warfare Elimination Act (S.320) was introduced on January 31, and passed by the Senate on Feb. 20, 1991.

The EAA of 1979 authorizes the President to restrict the export of any goods or technology to protect the national security or to further U.S. foreign policy goals. Civil penalties for violations of the EAA may reach \$500,000 per violation. The Commerce Department, in consultation with the Departments of Defense and State, administers export licenses for controlled commodities. Since March 29, 1984 the Department of Commerce has controlled the export to all non-members of the Australia Group of specific chemicals that can be used to produce chemical weapons. The new regulations issued on March 13, 1991 expanded the list of controlled chemicals from 11 to 50. Forty-one chemicals are banned for export to Iran, Iraq, Syria, Libya, and those countries to which exports are controlled through the Coordinating Committee on Multilateral Export Control (CoCom).

The Arms Export Control Act empowers the Department of State to exercise licensing controls over the export of chemical and biological weapons agents and munitions. Criminal penalties under the AECA can reach \$1 million per violation and imprisonment for up to 10 years. As of February 1991, only one U.S. company has been charged and found guilty of violating CW export controls.

¹⁴ Executive Order 12735, November 16, 1990; Glennon J. Harrison and George Holliday, Export Controls, CRS Issue Brief 87122

The Biological Weapons Anti-Terrorism Act of 1989 (PL 101-298) implemented the provisions of the Biological Weapons Convention, ratified by the Senate in 1974. The Act provides criminal sanctions with respect to biological weapons and bioterrorism.

Several bills introduced in the 101st Congress would have imposed sanctions on foreign countries, firms, and individuals that knowingly assist in the proliferation of chemical and biological weapons production. In the House, **the Chemical and Biological Warfare Elimination Act** (H.R. 3033), would have added greater specificity to the EAA of 1979 by amending it to require a validated license for the export of any goods or technology that the President determines would assist any nation in acquiring the capability to develop, produce, stockpile, deliver, or use chemical or biological weapons.¹⁵ Sanctions were also to be imposed upon nations that either use these weapons or are making "substantial preparation to do so." Sanctions for foreign individuals and firms would have included exclusion from all U.S. government contracts and denial of permission to import goods into the United States. Nations that use or prepare to use chemical or biological weapons would have been subjected to at least three of the following sanctions: (1) arms sales embargo; (2) denial of export of sensitive technology and goods, as defined by the EAA 1979 control list; (3) restriction of export of all other U.S. goods, except agricultural commodities; (4) denial of any assistance under the Foreign Assistance Act of 1961 and the Arms Export Control Act; (5) denial of credit by an U.S. agency; and (6) U.S. opposition to any financial or technical assistance by international financial institutions. The President could have waived any sanctions for reasons of national security.

In the Senate, **the Chemical and Biological Weapons Control Act** (S.195) contained essentially the same provisions as H.R. 3033, but included additional sanctions against those nations that use chemical or biological weapons and an additional reporting requirement. The additional sanctions were denial of credit from any U.S. bank and denial of U.S. landing rights to any national airline. The President would have been required to submit an annual report to Congress that describes the efforts of nations (including specifically Iran, Iraq, Syria, and Libya) or organizations to acquire chemical or biological weapons, and identifies those countries, organizations and individuals that may have assisted these efforts.

There was bipartisan congressional support for tightening U.S. export control policies in the 101st Congress. The Bush Administration endorsed the general intent of the legislation, but objected to mandatory statutory sanctions as an infringement on Presidential authority. Administration officials have suggested that the EAA and the AECA provide adequate export control mechanisms.

3) Executive Actions

Enhanced Proliferation Control Initiative. Following the President's veto of the EAA on Nov. 16, the White House vowed to implement trade sanctions against violators of U.S.

¹⁵ The House-Senate conference version of H.R. 3033 was inserted in H.R. 4653, which was pocket-vetoed by the President. The conference version was a compromise of H.R. 3033 and S. 195.

non-proliferation policy and outlined new measures for controlling exports of precursor chemicals.¹⁶ On Dec. 13 the White House followed up the President's Executive Order on Chemical and Biological Weapons Proliferation with the announcement of the Enhanced Proliferation Control Initiative (EPCI). EPCI formalizes the President's commitment to enforce U.S. chemical and biological non-proliferation policy without a statutory requirement for mandatory sanctions. EPCI extends existing procedures for restricting exports of nuclear commodities to apply to dual-use chemical and biological commodities. New restrictions on chemical and equipment exports by U.S. companies may affect commodities not currently restricted by the Australia Group.

The Bush Administration indicated in Feb. 1991 that it was preparing to enforce tougher restriction on wide range of chemicals.¹⁷ On March 7, 1991 the White House unveiled new regulations which expand the number of controlled chemicals from 11 to 50, require licenses for exports of dual-use equipment used in the manufacture of chemicals, require licenses for all exports of complete CW-related plants and designs, require licenses for any exports to facilities suspected of producing weapons, and require licenses for U.S. citizen participation in CBW (and missile) projects.¹⁸

President Bush's United Nations Chemical Weapons Proposal, September 25, 1989. On September 23 1989, the United States and the Soviet Union signed a bilateral Memorandum of Understanding initiating a joint experiment on verification systems for a CW treaty. In his address before the United Nations in September 1989, President Bush proposed that the United States would destroy 80% of its CW stockpile if the Soviets agreed to do the same and agreed to an adequate inspection regime. Furthermore, the U.S. would destroy 98% of its stockpile within 8 years of a convention if the Soviets would join the convention.

In June 1990 the U.S. and Soviet leaders signed an agreement covering the production of chemical weapons and the destruction of current CW stockpiles. Negotiations over verification and destruction procedures have not been completed, missing the December 31, 1990 deadline, and postponing submission of the agreement to Congress.

The agreement calls for each side to destroy 50% of its declared stockpile by Dec. 31, 1999, and all but 5,000 metric tons by December 2002. Both parties agree to end production of chemical weapons when the agreement comes into force. The Soviet Union has already declared cessation of production, while the U.S. has ceased its production. The agreement expresses support for continuing negotiations for a global CW ban, including a schedule for further reductions of remaining CW stockpiles.

¹⁶ White House Press Release, Nov. 16, 1990; *The Washington Post*, November 17, 1990, p. A16.

¹⁷ *The Washington Post*, Feb. 27, 1991, p.G1.

¹⁸ *Federal Register*, March 13, 1991.

III. The Missile Non-Proliferation Regime

Summary

With few exceptions, the U.S. has maintained stringent controls on missile technology throughout the Cold War era. In recent years, however, concern over the rapid spread of missiles has increased as the advanced industrial nations' *de facto* monopoly on missile technology has given way to the rapid diffusion of missiles and missile technology throughout the world. The missile technology control regime (MTCR) is a relatively recent development, the youngest and least developed of the three non-proliferation regimes.

In contrast to the nuclear, chemical, and biological non-proliferation regimes, the MTCR is not supported by major treaties, nor is it administered or legitimized through the agencies of the United Nations. These deficiencies underscore the lack of international consensus against the proliferation of missiles. Like nuclear and chemical weapons, some nations claim it is their sovereign right to acquire, develop, deploy, and export missiles. Another similarity with the nuclear and chemical weapons non-proliferation regimes exists in the difficulties encountered in controlling "dual use" technologies which may be used for civilian and military purposes. The difficulties of distinguishing between civilian space launch vehicles and military missiles further complicates the enforcement of the MTCR. Consequently, the proliferation of missiles and missile technology continues at a brisk pace.¹⁹ CIA Director William Webster has predicted that by the end of the century "at least 15 developing countries will be producing their own ballistic missiles."²⁰

The missile non-proliferation regime is based almost entirely on a system of multilateral and unilateral voluntary export controls that have been adopted by supplier nations. The MTCR stands almost alone as the single international pillar of the missile non-proliferation regime. Moreover, the long-term effectiveness of supplier controls is gradually being eroded as developing nations become increasingly capable of producing missiles indigenously or with the assistance of other developing nations.

The U.S. component of the international MTCR consists of legislation authorizing the control of sensitive and "dual use" technologies by U.S. government agencies, legislation requiring sanctions against individuals who improperly export missile technology, diplomatic initiatives to dissuade certain nations from developing particular missiles, and Presidential actions intended to improve the effective implementation of U.S. export controls. President

¹⁹ Robert Shuey, *Missile Proliferation: A Discussion of U.S. Objectives and Policy Options*, CRS Report for Congress, February 21, 1990; Janne E. Nolan and Albert D. Wheelon "Ballistic Missiles in the Third World," *Scientific American*, August, 1990; Barbara Starr, "Ballistic Missile Proliferation: A Basis for Control," *International Defense Review*, March 1990 v.23, no.3, p. 265.

²⁰ Testimony before the Senate Governmental Affairs Committee, May 18, 1989.

Bush has also initiated diplomatic efforts to consolidate international support for multilateral export controls on missile technology.

A) INTERNATIONAL COMPONENTS OF THE BALLISTIC MISSILE NON-PROLIFERATION REGIME

1) The Missile Technology Control Regime (MTCR)²¹

In April 1987, the United States, Canada, France, West Germany, Italy, Japan, and the United Kingdom adopted the Missile Technology Control Regime to limit the proliferation of missiles capable of delivering nuclear weapons. The United States unilaterally initiated similar export controls in the early 1980s as it began negotiations with its six Economic Summit partners to gain their cooperation. The joint statement issued by Secretary of State Baker and Soviet Foreign Minister Shevardnadze on February 10, 1990, noted that both sides "adhere to the export guidelines of the existing regime relating to missiles, which applies to missiles capable of delivering at least 500 kilograms of payload to a range of at least 300 kilometers." In the joint statement of President Bush and President Gorbachev issued on June 4, 1990, the two countries "affirm their support for the objectives of the Missile Technology Control Regime, covering missiles, and certain equipment and technology relating to missiles capable of delivering at least 500 kilograms of payload to a range of at least 300 kilometers and they call on all nations that have not done so to observe the spirit of the guidelines of this regime..." MTCR membership in early 1991 stands at 16 countries.

The MTCR's guidelines call on each of the member countries to exercise restraint in considering transfers of equipment or technology that would provide a recipient country, or help it build, a missile capable of delivering a 500 kilogram (1,100 pound) warhead to a range of 300 kilometers (186 miles) or more. Such equipment and technology are described in an annex to the guidelines and are divided into two categories. There is a stated strong presumption to deny transfers of Category I items which include complete rocket systems and complete subsystems. The guidelines state, "Until further notice, the transfer of Category I production facilities will not be authorized." Export restraints are applied to Category II which consists of other components, equipment, material, and technology that would be usable in such a missile or in the production of a missile. The Regime is based on the premise that foreign acquisition and development of missiles can be delayed and made more difficult and expensive if major producers agree to control exports of the equipment and technology used in missile production. The MTCR is similar in this regard to the Nuclear Suppliers Group (London Group), the Australia group to control chemical exports, and the Coordinating Committee for Multilateral Export Controls (CoCom).

The MTCR is considered a somewhat successful product of quiet diplomacy. The MTCR has been credited with slowing missile development in Brazil and India and a cooperative

²¹ Prepared by Robert Shuey, Specialist in U.S. Foreign Policy and National Defense, Foreign Affairs and National Defense Division, Congressional Research Service, Library of Congress

program of Argentina, Egypt, and Iraq. Germany has tightened its export control law and is investigating charges that Germans have smuggled missile technology as well as nuclear and chemical production technology to developing countries. Italy has taken legal action against alleged missile technology smugglers. A number of other European countries, Japan, and Australia have reviewed and tightened their export control systems. Egypt has reportedly terminated its participation in the cooperative program with Argentina and Iraq to develop the Condor missile. Accurate long-range missiles are expensive and difficult to develop and produce. Because most countries cannot produce and integrate all of the sophisticated components required, the MTCR and complementary export control systems will probably impede Third World development of the most advanced missiles.

The MTCR, however, has achieved little success in constraining certain aspects of missile proliferation. Within the MTCR, the application of voluntary export controls has been inconsistent and uneven. Companies and individuals in France, Germany, Israel, Italy, Japan, South Africa, the Soviet Union, and the United States have reportedly transferred entire systems, components, materials, or technical information to other countries engaged in missile development. MTCR restrictions apply only to commodities and facilities that are "specifically designed" to produce components of missiles that can carry a 500 kilogram warhead 300 kilometers, even though smaller missiles with shorter ranges may also pose significant dangers. The MTCR is not comprehensive or leakproof. It does not restrict all relevant missile technology and has no verification and enforcement mechanisms.

Furthermore, much of the international commerce in missiles and missile technology occurs between nations that do not adhere to MTCR guidelines. China is not a member, and the Soviet Union has only recently indicated its intent to reform its missile export policy. A growing list of nations now produce ballistic missiles with indigenous technology and are increasingly less dependent on imported materials. These new supplier states have forged cooperative relationships with other developing nations seeking to develop or purchase their own missiles. The MTCR may not be sufficient to address these emerging patterns of proliferation.

2) Coordinating Committee on Multilateral Export Controls (CoCom)

CoCom facilitates the harmonization of its members' national export control policies. The membership includes the NATO countries (except Iceland), Japan, and Australia. CoCom oversees the export of sensitive technologies to communist countries. The CoCom Core List of restricted commodities has been the focus of recent reforms intended to revise the list in response to the collapse of Soviet-dominated governments in Eastern Europe and the reduction of Cold War tensions. The dropping of certain sensitive and dual-use items from the list, however, raised concerns in the U.S. that the revised list would ease existing constraints on the nuclear, chemical, and missile programs of nations such as India, Pakistan, China, Brazil,

Libya, and Iraq.²² Analysts warned of the potential retransfer of U.S. exports from European nations with less restrictive export policies to nations that would not be allowed to import certain U.S. goods directly.

B) U.S. BALLISTIC MISSILE NON-PROLIFERATION POLICY

1) Major Issues for the Missile Non-Proliferation Regime

The international regime for controlling the spread of missiles is in an early stage of development. Some difficulties associated with the nuclear, chemical and biological non-proliferation regimes may be even more acute with respect to missile technology. While many of the materials associated with nuclear weapons can be controlled and identified, missiles, like chemicals, are constructed of materials that are commonly used in a wide range of commercial manufacturing processes. Ballistic missiles can be nearly indistinguishable from civilian space launch vehicles, and defensive missiles may also contribute to a nation's offensive capabilities. Determining what types of missiles and missile technology to control confronts policy makers with difficult choices.

(1) What role will the U.S. play in the future development of an international regime to control the spread of missiles? U.S. leadership may determine whether the MTCR supplier group evolves along the lines of the NPT regime, or adopts a less formalized approach. A U.S. commitment to apply lessons learned from previous non-proliferation regime-building experience could focus on expanding the membership of the MTCR²³, negotiating a formal MTCR treaty, introducing experimental inspection mechanisms, and providing positive as well as negative incentives for nations to support the MTCR. Positive incentives could include trade credits, development assistance, non-military technology transfers, and access to space launch and satellite capabilities. Negative incentives could include the imposition of sanctions against violations of MTCR export controls and against countries engaged in certain kinds of missile development programs. Like the nuclear non-proliferation regime, supplier guidelines can be reinforced by penalties against end-users as well as against exporters.

(2) U.S. policy makers will likely weigh the potential national security benefits of slowing the development of sophisticated missile systems in potentially hostile nations against the potential economic benefits of less restricted exports of certain advanced technologies. Military and economic aspects of national security are sometimes in conflict with respect to the potential costs and benefits of export controls. Can the problems associated with increased missile threats be justified by improvements in the competitiveness of American firms in the global high technology market?

²² Testimony of Gary Milhollin before the House Subcommittee on Commerce, Consumer & Monetary Affairs of the Committee on Government Operations, September 27, 1990; Hearings before the Joint Economic Committee, Subcommittee on Technology and National Security, September 21, 1990.

²³ Senator Dan Quayle, Ballistic Missile Proliferation Update, June 24, 1988.

(3) Policy makers may also have to consider the goals of U.S. missile non-proliferation policy in view of the fact that U.S. foreign policy and national security interests may be served by selective deployments of missiles by U.S. allies.

(4) What role can U.S. security assistance play in restraining missile development? Throughout the Cold War the U.S. security umbrella over Western Europe and parts of Asia and the Middle East helped to preclude the development of weapons of mass destruction by a number of U.S. allies. The U.S. has also provided defensive missiles to some allies, most recently in the Persian Gulf. How would reductions of U.S. and Soviet security assistance to certain regions affect regional tensions and rivalries? The INF Treaty required the removal of medium range missiles (with ranges between 500 and 5500 km) from Europe that were considered by some essential to the U.S. and NATO security alliance. It has been suggested that future arms control negotiations seek to globalize the INF Treaty. What combinations of security assistance and arms control might be most effective in minimizing missile threats to the U.S. and its allies?

(5) How will linkages between nuclear, chemical and biological weapons affect the development of missiles and other advanced delivery systems? A comprehensive non-proliferation strategy may help to guide and coordinate U.S. policy.

2) Congressional Actions

Several bills were introduced in the 101st Congress with the intention of strengthening the U.S. position on MTCR. Controls of missiles under the **Arms Export Control Act** were not considered comprehensive enough by many observers. New legislation included additional sanctions against nations, companies, and individuals who violate U.S. export regulations (H.R. 963 and S.1227, the Missile Control Act of 1989; S.1924, the Missile Equipment and Technology Control Act; S.1830, the Gore-McCain Missile and Proliferation Control Act; H.R.4739, National Defense Authorization Act, Title XVII, the Missile Technology Control Act of 1990). There has been widespread bipartisan congressional support for legislation to strengthen U.S. missile technology control laws. The Bush Administration objected to the imposition of mandatory statutory sanctions and pocket-vetoed the reauthorization of the Export Administration Act of 1990 which included the MTCR bill as well as the Chemical and Biological Weapons Control Act. Administration officials maintain that the President already possesses numerous mechanisms for sending signals to foreign governments, companies, and individuals about inappropriate missile transfers.

The Missile Technology Control Act of 1990 became law in the 101st Congress (H.R. 4739, Title XVII of the National Defense Authorization Act for Fiscal Year 1991, P.L. 101-510). MTCR legislation requires the President to impose sanctions on U.S. and foreign individuals who improperly export controlled missile technology. Sanctions include denial of U.S. export licenses and prohibitions on U.S. government contracts for 2 to 5 years (*Congressional Record*, Sept. 19, 1990, H7831).

3) Presidential Actions

The Bush Administration has advanced its missile proliferation agenda on several fronts. In Washington the Administration has expanded non-proliferation offices at the Defense and State Departments and the Arms Control and Disarmament Agency. The Administration has also taken steps aimed at improving interagency coordination and implementation of export control policy.²⁴

On the diplomatic front, the Bush Administration has pressured Argentina and Egypt to abandon their joint development of the Condor missile, issued a series of de marches to Germany and other nations regarding the inadequacy of their export control policies, and conducted talks aimed at broadening the membership of the international MTCR supplier group. The Soviet Union has agreed to observe MTCR export guidelines, except in Afghanistan. Chinese observance of the MTCR voluntary supplier guidelines would close a major source of Third World missiles.

U.S. diplomacy could perhaps play a key role in helping to negotiate regional security arrangements which could include limitations on missiles and other delivery systems. Top level U.S. diplomats have discussed plans for a post-Gulf War Middle East security arrangement. The U.N. Conference on Disarmament has also advanced ideas for a comprehensive Middle East security structure. Any such structure would probably include arms control measures intended to halt the spread of weapons of mass destruction and their delivery systems.

Certain military actions may also be interpreted as advancing the goals of missile non-proliferation. The Gulf War illustrated some of the dangers associated with missile proliferation. One objective of Operation Desert Storm was to eliminate Iraq's ballistic missiles. Defensive missile systems such as the Patriot complemented direct attacks against Iraq's missile systems. Military action, including preemptive attacks, as well as increased reliance on missile defenses remains an option for U.S. policy.

²⁴ An interagency Policy Coordinating Committee is chaired by the Under Secretary of State to align government action on chemical, biological, nuclear, and missile proliferation. A subgroup of the committee concentrates on the proliferation of missiles. An interagency Missile Technology Export Control Group coordinates the review of missile-related export license applications and a Missile Technology Trade Analysis Group was also established to coordinate information and action when missile technology has been improperly transferred. Within State Department's Bureau of Politico-Military Affairs an Office of Proliferation Policy was formed and an Office of Proliferation Policy was also formed within the Office of the Under Secretary of Defense for Policy.

IV. COMPARISON OF THE NON-PROLIFERATION REGIMES

A comparison of the major components of the three non-proliferation regimes is intended to facilitate an evaluation of alternative strategies for U.S. non-proliferation policy. Table 1 summarizes major components of each of the three non-proliferation regimes.

A. COMPARISON OF THE ORGANIZATIONAL STRUCTURES OF THE REGIMES

The organizational structure of each of the three non-proliferation regimes reflects the influences of its major components. The organizational structure of the nuclear non-proliferation regime, for example, is strongly influenced by the Non-Proliferation Treaty structure and the international organization (the IAEA) established to support it. An array of other treaties, suppliers groups, and U.S. policies lend substance and structure to the regime. By contrast, the chemical and biological weapons non-proliferation regime lacks a catalytic main pillar such as the NPT, and as a result its structure is less centralized and less formal. The missile technology control regime is comprised of a relatively small number of nations belonging to the MTCR suppliers group.

Nuclear. The nuclear non-proliferation regime is built upon the foundation provided by the Non-Proliferation Treaty. The IAEA provides the regime with a verification procedure, safeguards monitoring, positive incentives for states that comply with the NPT, and a degree of credibility based on its international -- as opposed to U.S. or Western dominated -- character. The nuclear regime is strengthened by the addition of regional (Latin American Nuclear Free Zone, South Pacific Nuclear Free Zone) and bilateral arms control treaties. The regime is also supported by multilateral controls on nuclear commerce (Zangger Committee, London Group), and a legacy of strong Presidential leadership and congressional support for non-proliferation policy. U.S. laws provide authority for specific oversight and regulation of nuclear commerce, as well as incentives for trade partners to comply with U.S. safeguards and standards. The nuclear regime encompasses the most extensive structure in nearly every category of comparison.

Nevertheless, the nuclear non-proliferation regime has not prevented some nations from seeking to acquire the wherewithal necessary to develop nuclear weapons. Two of the five declared nuclear weapons states have not signed the Nuclear Non-Proliferation Treaty (China, France), nor have the four nations reported to possess some undeclared nuclear weapons capability (India, Israel, Pakistan, South Africa). Several other nations that have not signed the NPT have operated uranium enrichment facilities capable of producing weapons-grade material (Argentina, Brazil). North Korea signed the treaty but has refused to complete an inspection agreement with the IAEA as required by the treaty. Still other nations (Iraq, Libya) that signed the treaty have taken steps towards acquiring nuclear weapons.

The organizational centerpiece of the nuclear non-proliferation regime faces a number of potentially damaging challenges. One of the most critical challenges for the regime is the conditioning by a group of NPT signatories of the extension of the NPT in 1995 on the signing of a comprehensive test ban by the nuclear weapons states. The United States opposes a test ban while the Soviet Union supports it. The lapsing of the NPT would constitute a serious devolution of the regime. Another issue for the nuclear regime is the limitations of the

TABLE 1

Regime	Formal Treaties	Suppliers groups and informal agreements	International Organization	U.S. Statutory Bases	U.S. Executive Policies	U.S. Government Agencies
Nuclear	Non-Proliferation Treaty, 1970		IAEA	NNPA, 1978	Bilateral Arms Control, Flexible Diplomacy, Direct Action	Dept of State, Defense, Commerce, Energy, NRC, ACDA, Intelligence
	Treaty of Tlatelolco, 1968	CoCom	U.N. Conf. on Disarm.	FAA, 1961 EAA, 1979 AEA, 1954		
	Treaty of Rarotonga, 1986	Zangger Committee, 1974				
	Convention on Physical Protection, 1987	London Club, 1975				
	U.S.-Soviet Bilateral				EPCI, 1990	
Chemical and Biological	Geneva Protocol, 1925	Australia Group, 1984	U.N. Conf. on Disarm.	EAA, 1979	Bilateral Arms Control	State, Defense, Commerce, ACDA, Intelligence
	Convention on the Prohibition of Bacteriological and Toxin Weapons, 1975	CoCom			EPCI, 1990 Direct Action	
Missiles	INF	MTCR, 1987		MTCA, 1990	Direct Action	State, Defense, Commerce, ACDA, Intelligence
		CoCom		AECA, 1976	EPCI, 1990	
				EAA, 1979		

International Atomic Energy Agency and its inspection system, which lacks sufficient resources or authority to expand the scope of its operations. The attack on Iraq's nuclear facilities may reduce confidence in the IAEA safeguards system. Finally, the emergence of new suppliers of nuclear technology and materials to the Third World who operate outside of the regime legal and behavioral norms could undermine multilateral and unilateral efforts to control international nuclear exports.

Chemical and Biological. The chemical and biological weapons regime is structured loosely around two treaties (Geneva Protocol, Biological and Toxin Weapons Convention), that prohibit the use but not the stockpiling of chemical and biological agents. The regime depends heavily on the voluntary multilateral supplier controls of the Australia Group for substantive action to control international commerce in chemicals. U.S.-Soviet bilateral negotiations and parallel discussions by the U.N. Conference on Disarmament suggest the possibility of reaching a global Chemical Weapons Convention in the foreseeable future. The regime lacks a coherent structure, but shows signs of developing one that could combine various positive and negative incentives with formal treaty commitments to ban production and stockpiling of all chemical and biological weapons.

Missiles. The missile technology control regime consists almost exclusively of the multilateral export control groups (MTCR, CoCom). The truncated and top-heavy structure of the regime finds its strongest support among the most advanced suppliers of missiles and missile technology. It lacks a central treaty or formal international agreements governing any aspect of missile use, production, stockpiling, or transfers. International cooperation to control the spread of some of the most sophisticated missiles is growing, but has encountered difficulty with competing and contending security, political, and economic objectives.

B. ENFORCEMENT AND PENALTIES

The consensual and voluntary nature of the regimes makes it difficult to attach intrusive enforcement and compliance mechanisms to such cooperative arrangements. The IAEA safeguards system perhaps best illustrates the limitations inherent in attempts to police multilateral international treaties. Enforcement mechanisms are not included in the international components of the regimes. U.S. anti-proliferation laws contain some of the strongest provisions anywhere for levying fines and sanctions against proliferators.

Nuclear. The international components of the non-proliferation regimes do not contain substantial enforcement measures or penalties for violations. The IAEA is authorized to conduct inspections to verify that nuclear materials have not been diverted for military purposes. Violations are to be reported to the U.N. Security Council. Before signing the NPT, many nations required reassurance that IAEA safeguards inspections would not infringe upon their sovereign rights to conduct nuclear research and development. The recent case of Iraq, which was a signatory of the NPT and was considered to be in compliance with its safeguards agreement with the IAEA, illustrated some of the limits of the IAEA system.

The nuclear supplier groups contain no formal enforcement mechanisms for suppliers or users. The threat of a cutoff of nuclear trade with the members of the group is the main penalty available.

U.S. nuclear cooperation is conditioned upon compliance with U.S. non-proliferation laws. The main U.S. statutory components are: the **Nuclear Non-Proliferation Act of 1978**, key sections of the **Foreign Assistance Act of 1961** as amended, and the **Atomic Energy Act of 1954** as amended. Other statutes affect various aspects of nuclear trade and cooperation. Sanctions include cutoff of nuclear cooperation with the U.S., and as in the case of Pakistan, cutoff of all U.S. economic and military aid. Other legislation conditions U.S. loans, credit, trade status, and development assistance on compliance with U.S. non-proliferation policy. Proposed legislation would require the President to impose sanctions on violators of U.S. nuclear export laws. Authority for enforcing U.S. nuclear non-proliferation laws is shared by the Department of Energy, the U.S. Customs Service, and the Department of Commerce Office of Export Enforcement, with input from numerous agencies.

Chemical and Biological. The chemical and biological weapons regime claims little international authority for enforcing treaties or penalizing those who violate either the provisions of the treaties or the Australia Group's voluntary guidelines. Reports of chemical weapons use may be investigated by the U.N. Secretary-General. A new procedure has been discussed that would **require** the Secretary-General to order an investigation when presented with an allegation of chemical weapons use. While some have expressed concerns about the verifiability of agreements to control chemical weapons, U.S.-Soviet bilateral agreements to destroy chemical weapons stockpiles contain provisions for on-site inspections.

U.S. law provides for the imposition of fines and sanctions for restricted trade of certain chemical agents and biological toxins. The **Export Administration Act of 1979** provided primary authority for controlling U.S. exports. Proposed legislation (**Chemical and Biological Weapons Control And Warfare Elimination Act**, S.320) would require the President to impose sanctions subsequent to a determination that chemical weapons had been used, or that an illegal sale or transfer had occurred. Sanctions would include cutoff of U.S. assistance, trade, credit, or access to U.S. government contracts. The Bush Administration has argued that such measures are already available to the President under the Export Administration Act of 1979 or the IEEPA. Exports of chemical or biological weapons are controlled under the **Arms Export Control Act**. Civil penalties under the EAA may reach \$500,000 per violation, while criminal penalties may reach \$1 million and imprisonment for up to ten years. The **Biological Weapons Anti-Terrorism Act of 1989** provides criminal sanctions for acts of bioterrorism.

Recent executive actions also outline penalties for violators of U.S. chemical and biological export restrictions. Following the President's veto of legislation that would have required sanctions for violations of U.S. chemical and biological non-proliferation laws, he issued **Executive Order 12735** on chemical and biological weapons proliferation that mirrored many of the provisions contained in the vetoed legislation. The White House followed up with the announcement in December of its Enhanced Proliferation Control Initiative, which seeks to extend penalties already in force for nuclear and biological weapons to apply to chemical

weapons. Enforcement authority is shared by the Customs Service and the Department of Commerce Office of Export Enforcement.

Missiles. The MTCR multilateral export control group claims no authority to impose sanctions or penalties beyond its members informal agreement not to export certain items to certain nations. A recently adopted U.S. law, the **Missile Technology Control Act of 1990**, requires the President to impose sanctions on U.S. and foreign individuals who improperly export controlled missile technology. Sanctions include denial of U.S. export licenses and prohibitions on U.S. government contracts. Exports of missiles are also controlled by the **Arms Export Control Act**. Illegal exports of dual-use items used in missile development and production are controlled under the **Export Administration Act of 1979**, with the same penalties as those for illegal exports of controlled chemicals. After a lengthy and sometimes inconsistent review process is completed, the Customs Service and the Department of Commerce share responsibility for enforcement.

C. REGIME MEMBERSHIP

Nuclear. The nuclear non-proliferation regime claims broad international membership. Over 140 countries have signed the NPT. While broad regime membership may be beneficial for cultivating international consensus, a more select group of nations such as the London Club may provide more effective leadership for controlling the spread of advanced nuclear technologies. The broad consensus of the nuclear regime is supported by the efforts of the 19 members of the Zangger Committee and the 14 members of the London Group of nuclear suppliers to make nuclear commerce more resistant to proliferation. Several potentially crucial suppliers, including China and Brazil, are not members of the suppliers groups.²⁵

Chemical and Biological. Over 130 nations have signed both the Geneva Protocol (which prohibits the use of chemical weapons), and the Biological Weapons Convention, although many attached conditions. With 20 members in 1991, the Australia Group is the main focus of chemical weapon non-proliferation policy.²⁶ The signatories of the Biological and Toxin Weapon Convention comprise the membership of a biological weapons regime.

²⁵ The members of the Zangger Committee are Australia, Canada, Czechoslovakia, Denmark, Finland, Germany, Greece, Hungary, Italy, Japan, Luxembourg, the Netherlands, Norway, Poland, Sweden, Switzerland, the United Kingdom, the United States, and the Soviet Union. The members of the London Club are Belgium, Canada, Czechoslovakia, France, Germany, Italy, Japan, the Netherlands, Poland, Sweden, Switzerland, the United States, the United Kingdom, and the Soviet Union.

²⁶ The members of the Australia Group are Australia, Austria, Belgium, Canada, Denmark, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Switzerland, the United Kingdom, and the United States.

Missiles. MTCR membership has grown from the original 7 members when the group was established in 1987 to 15 in 1991.²⁷

D. REPORTING REQUIREMENTS

Several U.S. non-proliferation laws instruct the President to inform the Congress regarding the status of U.S. non-proliferation policies. Although many international agencies report periodically on proliferation issues, the IAEA's reporting requirements most closely resemble U.S. reporting requirements. (Statute of the Atomic Energy Agency, Article III-b(4), Article VI-j). Reporting requirements are more extensive for the nuclear non-proliferation regime than for either the chemical and biological or the missile regimes, mainly due to U.S. nuclear non-proliferation laws.

Nuclear. The IAEA submits annual reports to the U.N. General Assembly and is required to report "when appropriate" to the Security Council. The details of IAEA safeguards inspections are considered confidential.

U.S. laws require the President to report to the Congress on the status of nuclear proliferation and U.S. policies to control it. Section 601 of the **Nuclear Non-Proliferation Act** requires the President to report annually (in January) to the Congress on the Government's efforts to prevent nuclear proliferation. Section 620E of the **Foreign Assistance Act of 1961** as amended (the Pressler amendment) conditions aid to Pakistan upon a certification by the President that Pakistan "does not possess a nuclear explosive device." The President also reports to the Congress when opting to exercise his authority to waive requirements of sections 669 and 670 of the FAA of 1961 (the Glenn-Symington and Solarz amendments).

Chemical and Biological. Legislation introduced in the 101st and again in the 102nd Congress would require the President to submit an annual report to Congress on the chemical and biological weapon capability of various countries. Also, section 14 of the **Export Administration Act of 1979** requires the Secretary of Commerce to submit an annual report to Congress on the administration and effectiveness of export controls.

Missiles. The **Missile Technology Control Act of 1990** (section 1404) requires the Secretary of State to report to the Congress semiannually (every 180 days) on the "proliferation of long-range missiles and destabilizing offensive aircraft."

²⁷ The original MTCR members were Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. New members are Australia, Belgium, Luxembourg, the Netherlands, Norway, New Zealand, Denmark, and Spain.

E. U.S. GOVERNMENT AGENCIES WITH JURISDICTION FOR NON-PROLIFERATION POLICY

Figures 1, 2, 3, and 4 illustrate interagency coordination procedures for controlling exports under sections 5 and 6 of the Export Administration Act of 1979 and the Arms Export Control Act. The Departments of State, Commerce, and Defense, ACDA, and intelligence agencies are common to all three of the regimes. Two additional agencies, the Department of Energy and the Nuclear Regulatory Commission, bear responsibilities for policies regarding international nuclear cooperation and commerce. NASA's role in non-proliferation policy is unique to the missile regime.

The lead agencies with responsibility for formulating and implementing nuclear non-proliferation policy are: the Department of State, Department of Commerce, Department of Defense, Department of Energy, Nuclear Regulatory Commission, Arms Control and Disarmament Agency, and representatives from the intelligence community.

Agencies with major responsibility for chemical and biological non-proliferation include: the Department of Commerce, Department of State, Department of Defense, Arms Control and Disarmament Agency, and representatives from the intelligence community.

Agencies involved with missile proliferation issues include: Department of State, Department of Commerce, Department of Defense, Arms Control and Disarmament Agency, NASA, and the intelligence community.

F. CONGRESSIONAL OVERSIGHT

The congressional role in non-proliferation policy is expressed through legislative processes, Senate advice and consent for treaties, hearings, and investigations. The statutory component of U.S. nuclear non-proliferation policy contains provisions for an array of possible sanctions, including cutoff of U.S. and international assistance to proliferators. Such specific provisions are unmatched in the CBW and missile regimes. The more extensive legislative framework that exists for nuclear non-proliferation issues provides a broader basis for focused oversight than exists for either chemical and biological weapons or missiles. Recent legislative initiatives have sought to increase the sanctions available for violations of CW and missile controls.

The main congressional committees and subcommittees with an interest in nuclear proliferation issues include in the Senate: Senate Armed Services; Foreign Relations; Governmental Affairs; Banking, Housing and Urban Affairs (export controls); Environment and Public Works (weapons labs); and Appropriations.

Committees of the House of Representatives with an interest in nuclear non-proliferation policy include: House Foreign Affairs; Foreign Affairs Subcommittee on Arms Control, International Security and Science; Foreign Affairs Subcommittee on International Economic Policy and Trade; House Armed Services; Armed Services Subcommittee on

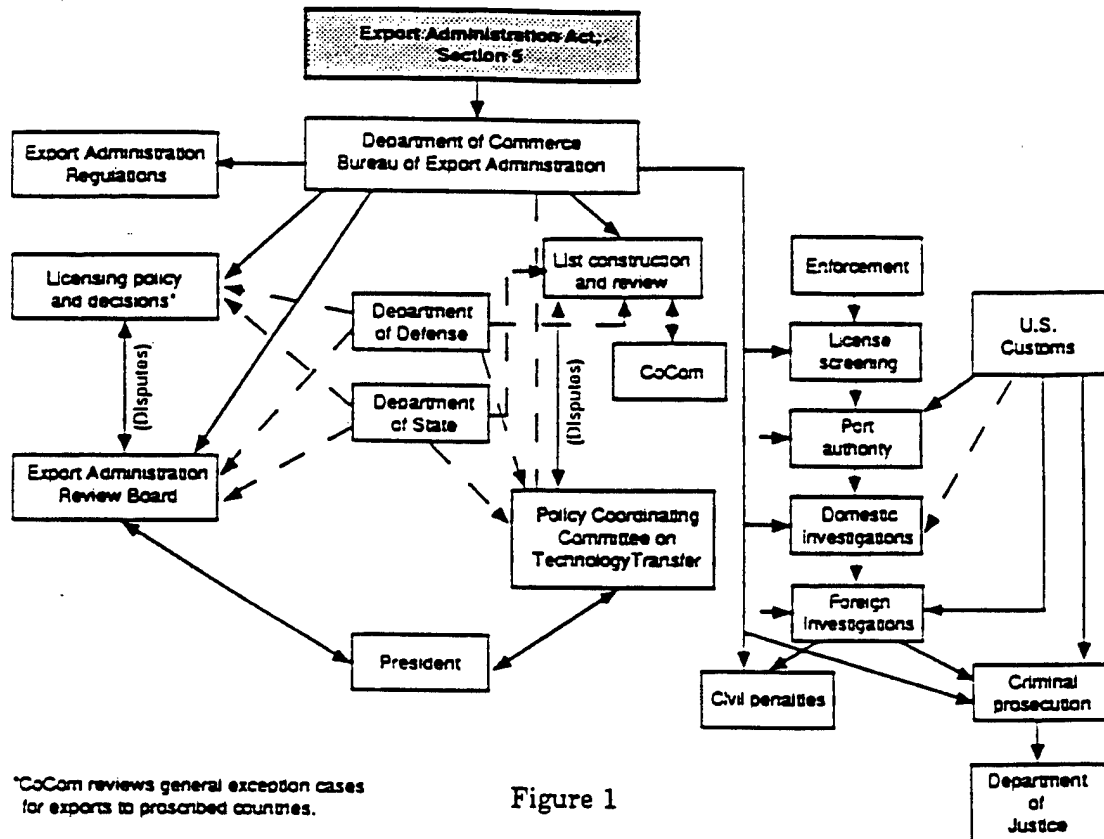


Figure 1

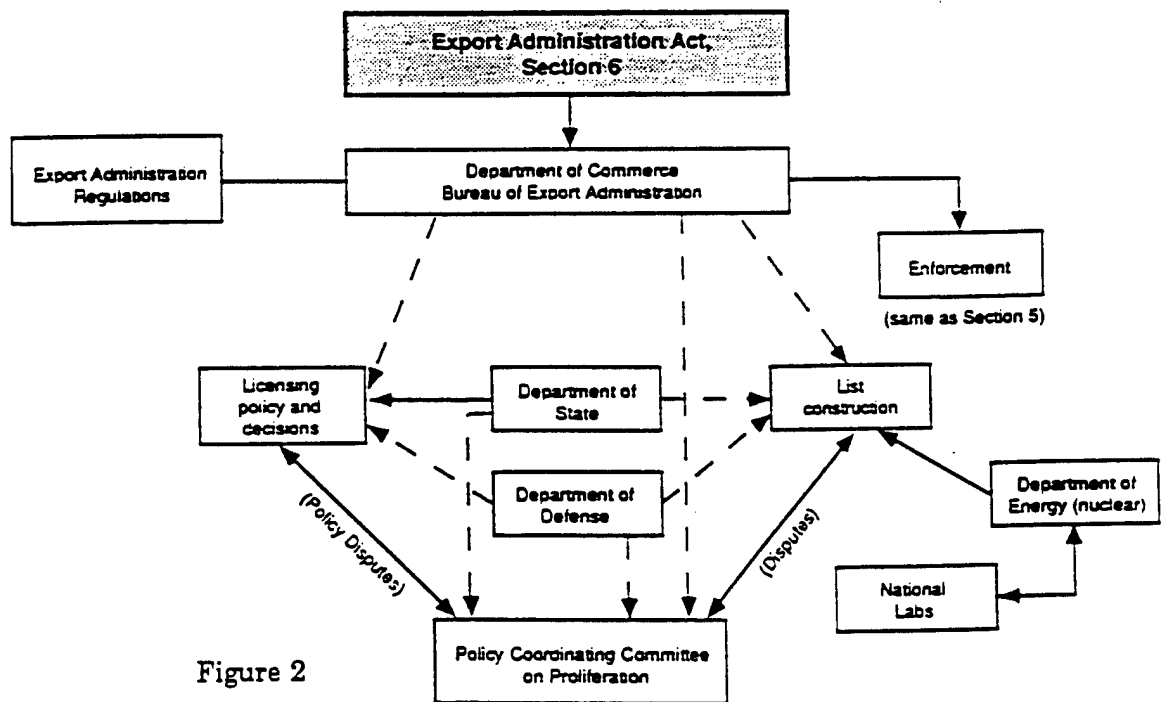


Figure 2

Source: Finding Common Ground, US Export Controls in a Changed Global Environment (Washington: National Academy of Sciences Press, 1990)

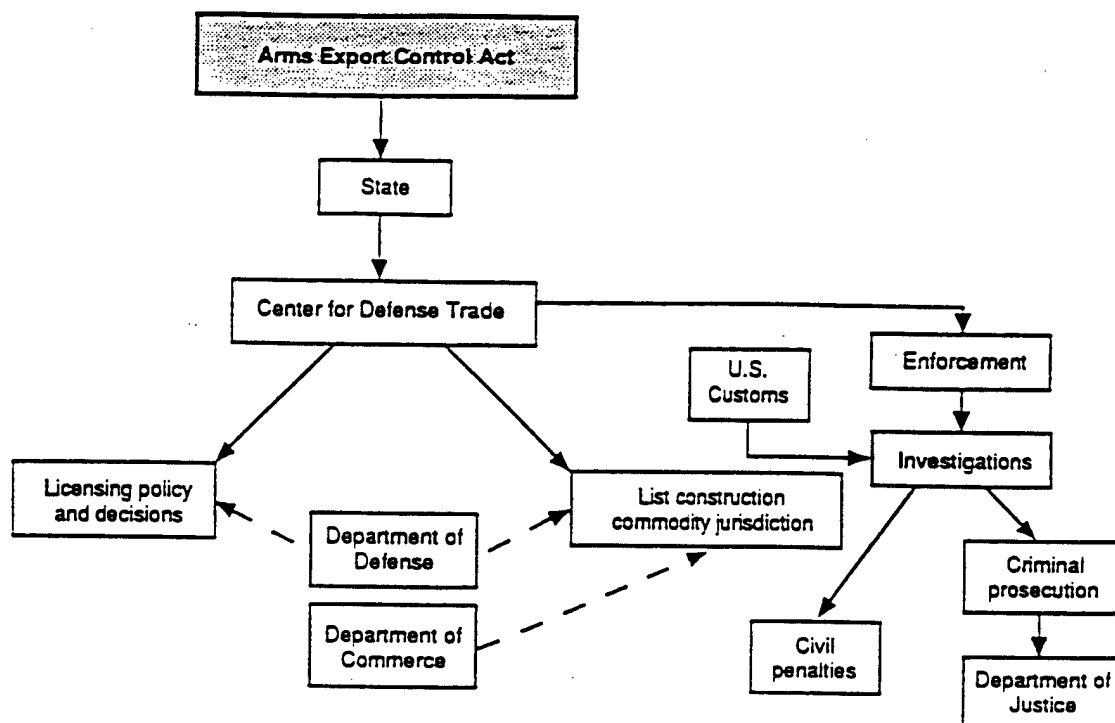


Figure 3 Munitions export control process

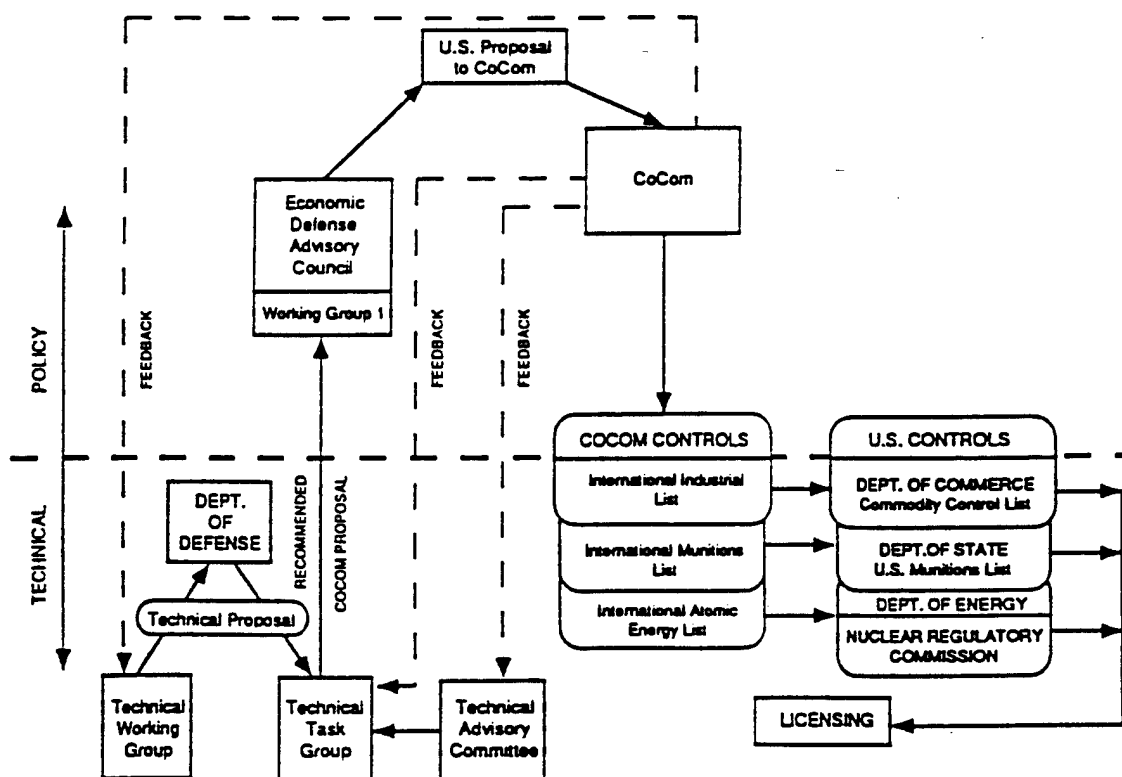


Figure 4 U.S. process for generating CoCom proposals

Source: Finding Common Ground, US Export Controls in a Changed Global Environment (Washington: National Academy of Sciences Press, 1990)

Procurement and Military Nuclear Systems; House Committee on Science Space and Technology; House Committee on Energy and Commerce; House Committee on Appropriations.

Congressional oversight of chemical and biological weapons and missile technology issues is substantially the same as that for nuclear proliferation, with some exceptions regarding oversight of the Department of Energy nuclear weapons complex and the commercial chemical industry.

G. COMMON STRATEGIES

The three non-proliferation regimes employ many similar, and in some cases identical strategies. Some strategies have proven more appropriate for controlling particular aspects of proliferation, while other approaches seem well-suited for more generic application. This section lists the major strategies that are common to the three regimes.

1. Building Consensus. International regimes seek to build consensus through the recognition of shared principles, rules, institutions, and norms of international behavior. Each of the three non-proliferation regimes represents a consensus, broad or narrow, against unchecked proliferation. The regimes were created to delegitimize the use and acquisition of weapons of mass destruction.

Nuclear. The international consensus against the use and acquisition of nuclear weapons is more fully developed than either the chemical and biological or the missile regimes. While the consensus against nuclear weapons could face a major challenge at the 20-year NPT review conference in 1995, there are indications that the consensus against the spread of nuclear weapons remains strong. The taboo against the use of nuclear weapons remains intact, despite some calls for the use of tactical nuclear weapons in the Gulf War. In 1990, several non-NPT nations with significant nuclear capabilities - Argentina, Brazil, and South Africa - indicated they intend to sign the Treaty. Major treaties such as the NPT can provide a catalyst for consensus building and help to formalize commitments to support international legal norms and institutions.

Chemical. The international consensus against the spread and use of chemical weapons is weak by comparison, but could evolve in several positive directions in the relatively near future. A global chemical weapons convention could help to fortify a growing consensus against the use and stockpiling of chemical weapons, especially if it includes provisions for verification and leads to the creation of an international organization, possibly modeled after the IAEA, to oversee the treaty. U.S. and Soviet bilateral chemical arms agreements could bolster support for a global ban. An international commitment to provide assistance to the victims of a chemical attack might also abet the delegitimization of chemical weapons. Fortunately, biological weapons are not generally accepted as legitimate weapons, although some states are reported to possess limited stockpiles.

Missiles. Many of the problems of building consensus against the use and spread of nuclear, chemical, and biological weapons are amplified with missiles. Numerous countries are seeking to develop computer, navigation, space and other technologies that could also be used

for designing and developing missiles. Supplier controls on such dual-use goods are often perceived as discriminatory, and the distinction between military missile-related technology and a wide range of civilian uses can be exceedingly hard to define. It is said that when President Kennedy was asked what the difference was between a space exploration vehicle and an ICBM, he replied, "attitude." The consensus against the spread of missiles and missile technology is not likely to be widely shared among many developing countries.

Whereas the NPT offers a *quid pro quo* to non-nuclear states, and the proposed global ban on chemical weapons would treat all nations equally, the missile technology regime so far offers little in the way of positive incentives to developing nations -- particularly those nations not allied with technologically advanced nations. The missile technology control regime is lacking the legitimizing influence of formal multilateral and bilateral international treaties and institutions comparable to those associated with the nuclear, chemical, and biological regimes.

2. Treaties. Formal multilateral treaties such as the NPT lend legitimacy to a regime by expanding its membership to encompass representation from throughout the international community. The statement of shared goals and the acceptance of formal commitments to uphold treaty requirements represents a major step towards the consolidation of international consensus. Major treaties such as the NPT provide a framework for evolving international norms and institutions such as the IAEA. A global Chemical Weapons Convention could help to consolidate such a consensus regarding the use and stockpiling of chemical weapons.

Bilateral arms control treaties such as those agreed to by the superpowers may also indirectly help to curb proliferation by serving as models for stabilizing emerging deterrence relationships and by providing certain developing nations with evidence of superpower progress towards disarmament, as prescribed in the NPT. At the 1990 review conference of the Non-Proliferation Treaty, a group of nations called for direct linkage between "horizontal" and "vertical" proliferation by conditioning extension of the NPT in 1995 on acceptance of a Comprehensive Test Ban by all nuclear weapons states.

Some analysts have recommended expanding the INF Treaty into a global ban on medium range ballistic missiles.

3. Export Controls. Supplier export controls comprise a major component of each of the three regimes. Multilateral and unilateral in nature, export controls find their greatest support among the advanced industrial nations who are key players in setting the non-proliferation policy agenda. Export controls have been viewed as discriminatory by some less-technologically advanced nations. Problems have arisen from differences in the way various countries implement and enforce multilateral controls. U.S. export control policies have been criticized for being inconsistent, confusing, and ineffective. Reforms of the U.S. system of export controls may facilitate improvements in the performance of multilateral export control agreements such as the London Group, the Australia Group, MTCR, and CoCom.

There has been widespread bipartisan support in the Congress for legislation that would impose sanctions against violators of U.S. nuclear, chemical and biological, and missile non-proliferation laws. The Bush Administration has opposed mandatory sanctions as an infringement on Presidential prerogatives. There exist very few precedents for evaluating the

effectiveness of sanctions such as those included in current legislation. However, recent improvements in the implementation of U.S. export control laws may increase confidence in the existing system. Substantial reforms of U.S. export control policies have been recommended.²⁸

Reforms recently undertaken by the German government to improve the implementation of its export control policies, including the application of full-scope safeguards on its nuclear trade, may strengthen the overall impact of multilateral export controls. The addition of legal commitments to enforce supplier guidelines could also strengthen the regimes, especially the Australia Group and the MTCR which are not supported by treaty commitments. The formal integration of the European economies in 1992 could, however, further complicate efforts to coordinate multilateral supplier guidelines such as those employed by the London Group (nuclear), the Australia Group (chemical), and the MTCR (missiles).

Unfortunately, some suppliers may not be persuaded to support U.S. non-proliferation objectives. New suppliers of nuclear, chemical and missile-related commodities, including China, Brazil, and India, may be motivated to advance their own financial and strategic interests in spite of U.S. opposition. An increasing number of developing nations are reaching a stage in their industrial development where they are no longer dependent on foreign suppliers. It may be increasingly difficult for existing supplier control groups to impose constraints on weapons and weapons technology produced indigenously by emerging supplier nations. Moreover, concerted efforts to circumvent supplier restrictions, such as employed by the governments of Iraq and Pakistan, have illustrated the limitations of supplier controls. U.S. and multilateral export controls have been most effective in limiting access to some of the more sophisticated technologies, but less effective in controlling the spread of older and commercially available technologies. Once again, unique aspects of nuclear commerce facilitate intelligence and enforcement activities, while the widespread availability of commodities useful in the production of chemical and biological weapons and missiles make them much more difficult to control.

4. Sanctions. Specific nations have been targeted by supplier groups to prevent them from importing commodities relevant to the acquisition of weapons of mass destruction or their delivery systems. Each of the multilateral supplier groups and the United States maintains lists of countries to which exports of certain items are prohibited. Various lists of "bad actors" have recently been adjusted to loosen restrictions on trade with former communist countries in Eastern Europe and to focus restrictions on nations engaging in proliferation-related activities. While unilateral sanctions can be undermined by exports from other countries, multilaterally imposed sanctions may help to prevent nation's like Iraq from importing the wherewithal to rebuild its nuclear, chemical, biological, and missile programs. Sanctions may be employed to expose and draw international attention to a nation's efforts to acquire weapons of mass destruction.

²⁸ *Finding Common Ground, US Export Controls in a Changed Global Environment* (Washington: National Academy of Sciences Press, 1991)

5. Arms Control. U.S.-Soviet bilateral arms control agreements may reinforce non-proliferation policy both directly and indirectly. In restraining various aspects of "vertical" proliferation between the superpowers, treaties such as the Partial Test Ban, ABM, SALT, INF, START, and other agreements also provide an impetus for other nations to accept similar types of limits on their own arsenals. Bilateral agreements modeled on the U.S.-Soviet experience might help to bring a degree of stability to regional arms races. Some analysts have suggested expanding the INF Treaty into a global ban on medium range missiles. Bilateral and multilateral arms control agreements based on the U.S.-Soviet model could place qualitative and/or quantitative limitations on weapons and delivery systems. Geographical restrictions on deployments might be considered. Numerical ceilings (as in SALT) and prohibitions on certain types of weapons (as in the ABM Treaty) might help to offset asymmetries between the forces of Pakistan and India, Israel and its neighbors, North and South Korea, and the nations of Southern Africa.

Nations within a particular region might agree not to deploy certain weapons within certain zones, or agree to limitations on the range, accuracy, and payloads of delivery systems. The superpowers might provide verification and weapons safety technology to monitor and safeguard such agreements. In circumstances where the evolution of stable deterrent relationships offers the best hope for preventing dangerous arms races from spiraling out of control, U.S.-Soviet arms control experience may suggest valuable lessons.

Superpower arms control can also have a direct influence on "horizontal" proliferation. The extension of the NPT in 1995 may depend on whether or not Washington and Moscow are able to demonstrate sufficient "good faith" on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament," as prescribed by the NPT. A group of developing nations that have signed the NPT have threatened to condition the extension of the NPT on the signing of a comprehensive test ban agreement. Other arms control agreements, such as a cutoff of plutonium production, have been discussed as possible alternatives to a CTB, which the U.S. opposes at this time. Significant reductions in U.S. and Soviet nuclear arsenals may help to persuade other nations that the economic and security risks associated with uncontrolled arms races are not justified. Similarly, U.S.-Soviet progress towards a bilateral agreement banning chemical weapons would probably encourage support for a global ban on chemical weapons.

6. Assistance. Positive incentives may be used to offer potential proliferators alternatives to acquiring weapons of mass destruction and delivery systems. Nations which perceive their national security to be threatened may look favorably on security assistance and security guarantees as alternatives to weapons of mass destruction. Direct U.S. assistance -- and the threat of losing it -- has been used to dissuade particular nations from acquiring certain weapons.²⁹ Conversely, the failure to provide military assistance might contribute to a nation's decision to acquire weapons of mass destruction or long-range delivery systems. For

²⁹ U.S. political pressure was reported to have dissuaded Taiwan and South Korea from continuing their nuclear weapons programs. Multilateral MTCR restrictions reportedly impeded Argentina's *Condor II* program, which was funded jointly by Egypt and Iraq with technical assistance from Western firms.

example, the U.S. decision not to supply additional F-15 aircraft to Saudi Arabia has been cited by some observers as a major reason for the Saudi's decision to purchase missiles from China in 1988.³⁰ Economic and military assistance, loans and credit, and collective security agreements may provide incentives to support U.S. non-proliferation objectives. International financial institutions such as the World Bank and the International Monetary Fund might apply conditions to reinforce non-proliferation in developing nations. Financial incentives may be particularly attractive to some of the emerging supplier nations, whose sales of nuclear, chemical, biological, and missile-related items may be economically motivated.

The NPT explicitly links the benefits of nuclear energy to non-proliferation commitments. The Nuclear Non-Proliferation Act of 1978 links U.S. nuclear commerce and cooperation to compliance with IAEA safeguards. Similar non-proliferation incentives do not attend the chemical and biological and missile technology control regimes.³¹

7. Confidence Building Measures. Confidence-building measures such those employed to bring a degree of stability to regional arms races in Asia and Latin America may help to reinforce regional security arrangements. The Pakistan-India agreement banning attacks on nuclear installations provides a model for confidence-building measures, as do the Brazil-Argentina reciprocal visits to nuclear facilities. Confidence-building is seen as a constructive incremental step towards more formal arms control commitments. This general approach may be useful in satisfying some basic security requirements that often cause nations to seek to acquire nuclear, chemical, and biological weapons and delivery systems. Partial and interim arms agreements, experimental verification arrangements, and exchanges of information may sometimes ease the way for more substantial agreements.

8. Direct Action. Under special circumstances, military action may again be used in connection with urgent non-proliferation objectives. Iraq's weapons of mass destruction were targeted for destruction in connection with Operation Desert Storm. Iran and Iraq have launched air raids against each other's nuclear facilities, and Israel destroyed Iraq's Osirak reactor in 1981 attack. While the military option carries potentially adverse political consequences, it remains a last resort in extreme circumstances. The destruction of nuclear, chemical and biological weapons production or storage facilities may create collateral hazards which should be weighed against the perceived benefits of non-proliferation.

Not all proliferation dangers are treated equally. The U.S. maintains reasonably good relations with China, India, Israel, Brazil, Argentina, and, arguably, Pakistan despite their covert or unsafeguarded nuclear weapons programs. U.S. allies, notably Germany, have assisted with the development of weapons of mass destruction and missiles throughout the globe. It is highly probable that the U.S. will seek to preserve its relations with some proliferators, and

³⁰ Geoffrey Kemp, "Solving' the Proliferation Problem in the Middle East," *New Threats, Responding to the Proliferation of Nuclear, Chemical, and Delivery Capabilities in the Third World* (Lanham: Aspen Strategy Group and University Press of America, 1990), p. 201.

³¹ The Missile Technology Control Act of 1990 applies sanctions to violators of US export laws, but does not offer incentives such as technical cooperation or access space launch capabilities.

continue to prosecute its proliferation policies somewhat selectively. Identifying proliferation dangers that pose intolerable threats to U.S. national security will continue to be a top priority.

9. Defenses. Air defense systems such as the Patriot and Arrow missiles may provide protection against certain types of missile threats. The prospect of vast increases in the numbers of missiles armed with nuclear or chemical warheads is among the most disturbing proliferation scenarios. While more extensive use of defensive missiles may complicate efforts to control the spread of missiles in general, missile defense systems may in some cases be seen to counteract the spread of nuclear, chemical and biological weapons which may be delivered by a variety of short and long-range missiles and airplanes. Problems may arise from the sometimes ambiguous distinction between offensive and defensive weaponry. U.S. transfers of defensive missiles to allies may be viewed by other nations as discriminatory and prompt them to take countermeasures to offset their perception that the U.S. has provided a potential adversary with an unfair advantage.

Renewed interest in defensive systems in the wake of the Gulf War may give rise to a expanded national and international debate on the future of the Strategic Defense Initiative, including its budget priority and potential effect on the ABM Treaty.

10. Underlying Causes. The partially anarchic nature of the international system provides nations with few guarantees of their security. Powerful and weak states alike must arrange their resources to attain enough power -- political, economic, and military -- to insure their own survival and security. But they must also exercise caution not to provoke insecurity in others which may lead them to respond in undesired ways. The proliferation of weapons of mass destruction can produce shifts in the distribution of military capabilities that are widely perceived to be adverse to the interests of a significant portion of the international community. Non-proliferation regimes express international consensus against such unfavorable concentrations of military power. The regimes seek to preserve or establish widely acceptable distributions of capabilities. Consensus in favor of preserving the *status quo* is strongest, but not universal, against the use and spread of nuclear weapons, and weaker with respect to chemical and biological weapons. The consensus against the spread of advanced missile technology is shared among a relatively small number of mostly technologically advanced Western industrialized nations.

At the state level, the external requirements of a nation's security may be augmented by internal political factors which influence the decision to acquire certain weapons. Prestige and regime security may have influenced the decision of some nations to acquire nuclear weapons. Chemical weapons have been described as "the poor nations nuke." The perception that weapons of mass destruction can in some cases provide a short cut to increased military power gives rise to the notion that an increase of prestige will quickly follow. This has not in all cases been an incorrect notion, especially when considered in a regional context. Attempts to dissuade nations from acquiring weapons of mass destruction should take into account the prestige factor that may motivate certain national leaders. The perception of increased military power may lend internal legitimacy to unpopular governments. Such governments can be expected to extract a high price for a pledge not to acquire certain weapons. The U.S. and other

nations seeking to control proliferation may not be disposed in all cases to satisfy certain governments demands for *quid pro quos*.

For nations motivated primarily by potential economic gains, alternative economic development strategies may help to provide options to weapons and weapons-related exports. This approach may be especially relevant for some of the emerging supplier nations.

In some countries democratization may strengthen civilian control of the military, as in Brazil and Argentina. There have been encouraging signs that South Africa may be moving closer to signing the NPT as it progresses towards a settlement of its internal political problems. Putting the principle of civilian control over the military into practice has in some cases preceded signs of restraint of certain weapons programs.

H. LESSONS FROM EXPERIENCE

No single approach or strategy seems adequate to address the multi-faceted problems of non-proliferation policy. While some strategies may seem more appropriate for certain circumstances, future efforts to control the spread of weapons of mass destruction will probably seek to incorporate most of the strategies already in place. Each of the regimes makes use of multilateral, bilateral, and unilateral policies. All of the approaches cited can contribute to the overall effectiveness of the regimes, especially when combined and coordinated to create a complex and sometimes redundant web of treaties, multilateral and unilateral supplier controls, positive and negative incentives, arms control, defensive measures, and - when all else fails - direct action. The combination of these strategies probably can not stop the proliferation of weapons of mass destruction. No strategy is leakproof. However, experience suggests that these strategies can successfully slow proliferation to protect vital U.S. interests while other steps are taken to address more fundamental foreign policy and national security problems.

1. U.S.-Soviet Relations. The easing of U.S.-Soviet tensions has not eased the pace of proliferation. The reverse may be somewhat more likely; proliferation of weapons of mass destruction in the Third World may even decrease incentives for the superpowers to reduce their own arsenals. Nuclear weapons states may wish to deter a growing number of potential new adversaries armed with massively destructive weapons and long-range delivery systems. The U.S., the U.S.S.R., and other nuclear weapons states may feel constrained to retain forces originally intended to deter one another to deter the nuclear, chemical and biological weapons of the Third World. Nonetheless, U.S.-Soviet cooperation has been of paramount importance in building and sustaining support for the nuclear non-proliferation regime. Continued cooperation can lend crucial support for future efforts to consolidate the nuclear non-proliferation regime and expand the chemical and biological and missile regimes.

Another lesson that may be learned from the experience of superpower arms control is that deterrence may in some cases be a more realistic goal than disarmament. Stabilizing emerging deterrent relationships in South Asia and the Middle East may prove to be a worthwhile incremental goal for non-proliferation policy. A fundamental goal of non-proliferation policy is to prevent the actual use of weapons of mass destruction. Arms control agreements can help to reduce the likelihood that weapons of mass destruction will be used by

formalizing deterrent relationships based on reliable information about an adversaries capabilities. When the genie of technology cannot be put back into the bottle, deterrence may be the second line of defense for preserving the norm of non-use. Mutual and verifiable arms control agreements may help to curb proliferation breakout at an early stage.

2. Multilateral Policies. None of the three non-proliferation regimes has been leakproof; the number of nations possessing weapons of mass destruction and the means to deliver them is growing. Universal proclamations regarding the undesirability of proliferation may help to consolidate international consensus, but are of limited value in terms of the specific measures required to prevent certain nations from acquiring particular weapons. Formal international treaty commitments such as contained in the NPT and the draft Chemical Weapons Convention constitute a potent non-proliferation weapon.

Nevertheless, the Gulf War illustrated some inherent limits of the NPT and the IAEA safeguards inspection system. As one of the main pillars of U.S. and international nuclear non-proliferation policy, the future of the NPT, the IAEA, and the IAEA safeguards system may be of crucial importance for preserving the regime. The unravelling of the NPT and the IAEA would roll back the regime's most forward positions in the battle to control nuclear proliferation. In many ways, the health of the nuclear regime may be seen as an indicator of the status of the other regimes. The preservation and strengthening of the main international components of the nuclear non-proliferation regime should be a top priority.

Export controls, which comprise a major component of each of the three regimes, probably cannot freeze the spread of weapons of mass destruction, but probably can slow the rate at which some nations acquire the most sophisticated weaponry. Slowing the rate of proliferation may be a worthwhile objective. Experience suggests that the effectiveness of multilateral export controls such as those imposed by the London Club nuclear suppliers group, the Australia Group, the MTCR coalition, and CoCom, is roughly proportional to the degree of harmony among the member's individual export policies. The case of Iraq, which imported much of its weaponry from Western countries, and the Toshiba case several years ago illustrate the consequences of discordant export control policies. Improved coordination by the multination export control groups may help to prevent similar breakdowns.

3. U.S. Policies. U.S. leadership has been the catalyst for global non-proliferation policy. Despite the U.S. leading role in establishing and maintaining the existing non-proliferation regimes, it may not be possible for the U.S. to sustain past levels of technological, economic, and military influence over the outcome of international debate on non-proliferation issues. The uncertainties surrounding the NPT review conference in 1995 is one example of the new challenges facing U.S. non-proliferation policy. New and more refined methods of persuasion and consensus-building may be required to sustain the non-proliferation regimes.

U.S. non-proliferation laws and policies lead the world in terms of self-imposed restraints against proliferation dangers. Vigorous U.S. policies, including the threat of sanctions, may set an example for other nations to follow. U.S. decisions regarding the balance between its non-proliferation objectives and other commercial, security, and foreign policy interests can be expected to influence all three of the non-proliferation regimes. Strategic and economic interests have at times prevailed over non-proliferation considerations, as in the cases

of Pakistan and Iraq. Trade policies designed to enhance the competitiveness of U.S. businesses in the global marketplace can be expected to conflict with robust export control policies.

It is somewhat striking that a relatively small group of nations have been involved in efforts to acquire nearly all types of weapons of mass destruction and long-range delivery systems. A few, like Israel, Pakistan, and India, argue that they must deter a neighbor's arsenal of unconventional weapons. Others, especially in the Middle East, may seek to influence regional alignments. Whatever their reasons, the U.S. will probably continue to maintain relations with countries who violate or refuse to cooperate with its non-proliferation policies. How the U.S. responds to breakouts from the non-proliferation regimes may establish precedents and send signals to other potential proliferators. While exercising caution not to overstate its influence, the U.S. must also be prepared to accept the political consequences which may follow a more restrictive non-proliferation policy.

The expanding areas of convergence between the regimes underscore a growing need for a more integrated proliferation policy. U.S. Presidents have taken the lead in giving definition to the threat of nuclear proliferation and marshaling national and international resources to meet that threat. In his speech to a joint session of Congress following the liberation of Kuwait, President Bush said "We must act to control the proliferation of weapons of mass destruction" (March 6, 1991). Presidential leadership in the area of non-proliferation has traditionally received broad bipartisan support in the Congress. While recognizing that U.S. non-proliferation policy must be consistent with other U.S. interests, a comprehensive statement of U.S. non-proliferation policy could help to form the basis for establishing non-proliferation priorities.

Non-proliferation has not always been the top priority for American foreign policy, nor will it be in the future. India, Pakistan, China, and other powerful nations, for example, can neither be ignored nor coerced. America's allies may not always share her non-proliferation goals, and disputes will undoubtedly surface between the various agencies of the government involved in proliferation issues. A focused statement of Administration policy could provide needed guidance to help manage disputes over the substance and implementation of proliferation policies. Although it would be wise to avoid raising unrealistic expectations for U.S. proliferation policies, a more integrated and comprehensive policy might facilitate the setting of priorities and improve coordination within the government and between the Administration and the Congress. Congressional oversight might also benefit from a sharpening and refocusing of proliferation policies and priorities.

Any discussion of priorities will soon focus on questions of resource allocation. Recent expansion of personnel and resources at Department of State offices responsible for non-proliferation policy and the Arms Control and Disarmament Agency indicate an increased sensitivity to proliferation issues. Agencies such as the U.S. Customs Service and intelligence agencies charged with front-line responsibility for implementing and enforcing policy will need resources commensurate with the tasks assigned them. New initiatives will probably require new resources. High-priority proliferation issues can benefit from receiving the appropriate level of attention from top level staff. Within the overall context of proliferation policy, the development and concentration of expertise on the particular problems of each of the three regimes can help to prepare the Nation for future exigencies. The dispersal of authority for

proliferation policy throughout numerous government agencies and committees could exacerbate confusion about priorities and hinder interagency cooperation. Some analysts suggest that a proliferation "czar" with responsibility only for proliferation might help to clarify and coordinate non-proliferation policy. Effective regime-maintenance depends in part on effective coordination among the agencies and offices trained to manage the various aspects of non-proliferation policy.

Ultimately, the U.S. can opt to strengthen the regimes it was instrumental in creating, to allow them to erode, or to try to maintain them at their present levels. Any decision to maintain or strengthen the regimes will necessitate continuing to cobble together combinations of multilateral, bilateral, and unilateral half-measures and partial solutions. The U.S. in concert with its allies may wish to add new layers to the regimes, including the addition of new multilateral treaties, agreements, international institutions, and new U.S. legislation intended to fill gaps in the regimes. The history of arms control diplomacy commends such an incremental approach. Experience suggests that deploying the full range of available strategies simultaneously across multiple venues is the best option for sustaining the three non-proliferation regimes.